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MATHEMATICAL & PHYSICAL GEOGRAPHY,

SIMPLIFIED INTO TWO PARTS.

IN THE FIRST PART IS CONTAINED THE

MATHEMATICAL GEOGRAPHY OF THE GLOBE,

WITH THE LEADING PRINCIPLES OF

PHYSICAL GEOGRAPHY.

IN THE SECOND PART IS CONTAINED THE PHYSICAL

GEOGRAPHY OF THE VARIOUS COUNTRIES OF EUROPE, ASIA;

AND IN A LESSER DEGREE THOSE OF

AFRICA AND AMERICA:

QUESTIONS TO EACH. TO WHICH ARE ANNEXED A

COPIOUS APPENDIX & NUMEROUS GEOGRAPHICAL TABLES

ILLUSTRATIVE OF THE MORE IMPORTANT TRUTHS OF

GENERAL GEOGRAPHY.

BY

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LONDON: EDWARDS & HUGHES, 12, AVE MARIA LANE.
DUBLIN: CURRY, JUN. AND CO., SACKVILLE-STREET.
STAMFORD: LANGLEY, HIGH-STREET.

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STAMFORD: W. LANGLEY, PRINTER.

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PREFACE.

The absence of a Class Book on MATHEMATICAL AND PHYSICAL GEOGRAPHY in Schools has induced the writer to draw up the following compilation, in which it is presumed will be found the substance of what the mere student might be able to glean from other works of greater magnitude.

In order to render it the more available and interesting to the mind of youth, no pains have been spared in trying to condense the important truths of the most authentic authorities into as small a compass as the generality of school books would allow.

In the first part of the work it is hoped that the Lessons on Mathematical Geography have been given with some perspicuity, as brevity and simplicity of expression formed the object of their construction. The Lessons on the leading principles of Physical Geography have been carefully selected, and it is expected so arranged as to initiate the learner in the ground work of one of the most extensive of all the Sciences.

In the second part of the work, the formation and connexion of the Lessons will be found of such a nature as to conduct the mind of the reader over the various countries of the globe, and trace the laws of natural Geography in their application to the natural world.

The Questions for examination to each Lesson will, it is hoped, be favourably received by Teachers, for whose sole use they have been inserted; but of so limited a nature, as to allow ample room for additional exercises from the latter.

The Appendix and Geographical Tables have been simply added to supply any matter of a descriptive nature which may be necessary to refer to; thereby saving the expense and trouble of providing an additional work on Elementary Geography.

Uffington, January 1*st*, 1850.

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ERRATA.

Page 8, line 20, for "*opposite*," read "*farthest from*."
Page 17, line 12, for "*equitable*," read "*equable*."
Page 42, line 5, dele "*artificially*."
Page 48, line 3, for "*carcerated*," read "*concretionary*."
Page 61, line 10, for "*arctic*," read "*polar*."

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MATHEMATICAL AND PHYSICAL

GEOGRAPHY.

PART I.

CHAPTER I.

Geographical Divisions and Terms.

GEOGRAPHY is derived from two Greek words, GE, the earth, and GRAPHO, I describe, meaning a description of the earth. It is divided into Mathematical, Physical, and Political. Mathematical geography teaches the position, form, motions, and size of the earth. Physical geography teaches the natural divisions of the earth as divided into land and water, its matter and productions, its atmosphere and climates. Political geography instructs in the divisions of the earth into Empires, Kingdoms, Principalities, etc., with their extent, population, governments, religions, laws, and learning. An imaginary line, passing through the centre of the earth and terminating at two opposite points of its circumference, is called a diameter of the earth; the points terminating at the circumference are called the poles, and that diameter which terminates at the poles is called the axis of the earth. In order to determine the exact position of places on the earth, certain imaginary lines or circles have been supposed as drawn upon the earth, which are either small or great. A great circle divides the globe into two equal

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parts, a small circle into two unequal parts. The most remarkable of the great circles are the Equator, the Ecliptic, the Meridian, and the Horizon. The Equator is a great circle passing round the globe at an equal distance from each pole, and divides the earth equally into the northern and southern Hemispheres. The Ecliptic is a great circle cutting the Equator obliquely; that is, not at right angles. It represents the sun's apparent path in the heavens, and is so called from eclipses always happening in this path. A Meridian is a great circle passing through the poles, and every place on the earth has its meridian: for example;—a circle drawn through London, passing through the poles, is the meridian of London. Meridian is derived from the latin word MERIDIES, meaning mid-day; because when any meridian passes under the sun, it is then mid-day at all places on that meridian. The Horizon is either rational or sensible. The sensible is the circle in the heavens, bounding the view of the observer by the apparent meeting of the earth and sky. The rational Horizon is a great circle, and, like the sensible, varies with the position of the observer, as being always parallel to it.

The rational Horizon varying with the position of the observer, it will suffice to give an example that may explain it more fully as a geographical definition:

Should the observer be at the North pole, the rational Horizon would be in the Equator; or placed at the Equator, the rational Horizon would pass through the poles: from this example its position in all cases may be easily determined. The circle of illumination is also a great circle, and is so called from dividing the illuminated half of the earth from the dark, or, the side farthest from the sun. It is important for determining the length of the day in all parts of the earth: for example:—the Equator and the circle of illumination being great circles, bisect each other, leaving one half of the Equator always illuminated, from which it follows, that, at the Equator, there is always equal day and night.

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Exercises.

Derive the term Geography? How is it divided? What is Mathematical Geography? Physical? Political? Why are imaginary lines drawn upon the Globe? How are they divided? Tell the most important of these lines? What is the diameter? What the Poles? What the Equator? The Ecliptic? The Meridian? The Horizon? The Rational Horizon? If placed at the North Pole, what would be the Rational Horizon? If at the Equator? Describe the circle of illumination? What is it useful for determining? Where are the days and nights always equal?

CHAPTER II.

Laws of Attraction applied to the Earth.

Matter is the general name of every thing or substance that has breadth, length, and thickness. Particles of matter when brought close together have a tendency to stick together; this tendency is called attraction of cohesion, and prevents bodies from falling asunder. Particles of matter have also a tendency to move, or be drawn towards each other. This quality is called attraction of gravitation. By the attraction of cohesion, drops of water or of any other fluid, when suspended at a proper distance from other objects, arrange themselves round a centre and take a globular form. It was by this species of attraction that the earth, originally without form and void, arranged itself round a centre, and, by the force of attraction, assumed a globular form, as the dew drop hanging from a thorn or blade of grass. By the attraction of gravitation, when any two masses of matter are brought within a proper distance of each other, will, if there be no sufficient obstacle, rush together, and so remain in union. This attraction may be seen operating by placing two fragments of cork on the surface of a cup of water; if brought within a short distance of each other, they will begin to attract, and finally rush together. By attraction of gravitation, a stone dropped from a height falls to the surface of the earth; and by it, the heavenly bodies are retained in their orbits.

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The planets gravitate towards the sun and towards each other, as well as the sun towards them, but their immense distance from each other, and also the velocity of their revolutions, prevent them from coming into contact. By attraction of gravitation, all bodies on the earth are drawn towards its centre: this constitutes their weight, and prevents bodies from falling off the earth; not that there is any thing particular at the centre of the earth; but the greatest amount of matter lies necessarily in the direction of the centre, and the heavier the body is, the greater its force of attraction.

In all places equally distant from the centre of the earth, the force of attraction acts alike towards the centre; but, the force is greatest at the earth's surface, from whence it decreases upwards and downwards: it decreases upwards as the square of the distance from the centre, and decreases downwards, simply as the distance.

Exercises.

What is matter? When particles of matter are brought close together, what is the effect produced? What is the effect called? What the consequence of attraction of cohesion? What have all masses of matter a tendency to do? What is this tendency called? By what species of attraction did the earth assume a spherical form? Give an example of this attraction? Give an example of attraction of gravitation? State some effects produced by gravitation? Why are bodies more particularly attracted towards the centre of the earth? Where on the earth is the force of attraction greatest? What its proportional decrease?

CHAPTER III.

Motion and Forces applied to the Earth.

A mass of matter set in motion upon the surface of the earth, or, anywhere within the Atmosphere, will sooner or later come to a stop. If a ball be rolled along a surface, it goes quickly for a time, then slowly, and at last stops and remains at rest. What causes it to rest is the resistance it meets with from the roughness of the ground,

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and the opposition of the atmosphere in which it moves: the force, acting in opposition to the ball, exactly amounting to the force which first put it in motion. Were it not for this opposing force, the ball once set in motion would travel on for ever.

The earth being placed in empty space, having nothing to hinder its course from its first outset, continues to move on perpetually, and the same applies to its motion on its axis. If a top were set a spinning on a smooth marble tablet, and could the air be exhausted or taken away from about it by means of an air pump, it would be found to keep in motion much longer than in ordinary cases: could the air be entirely drawn away, and the top made to spin in a suspended state, it would never stop, as long as its position remained unaltered.

But the earth's progressive motion is circular: Why should it be so? Because it is under the influence of the law of attraction, and the laws of motion. When the earth was first pushed forward in empty space, it tended to move in a straight line; but, by the law of attraction, it was prevented from a direct, to a circular course. The sun, as a large body suspended in empty space, exercises an attractive influence over the earth, and confines its course to certain limits, beyond which the earth cannot accede.

The forces by which the earth is made to assume a circular course, are called central forces; one, the centrifugal, or, centre-quitting force; and the other, the centripetal, or, centre-seeking force. By the centrifugal force, the earth tends to move in a direct course through boundless space; while, by the centripetal force, it seeks to approach the centre of the sun. These forces, acting in opposition to each other, cause the earth to move in a circular course, and settle in its present path, denominated its orbit.

It is worthy of remark, that large masses of matter exercise much greater powers of attraction than smaller ones, yet each mass attracting according to its weight. Distance also diminishes the power of attraction. Sup-

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pose two balls of unequal size, the smaller to be seperated from the larger to a distance equal to the semi-diameter of the larger, the attractive influence is diminished to one half: when removed to twice that distance, or to two semi-diameters, the attractive influence is diminished to one fourth: to three times the distance, the influence is diminished to one ninth, and so on diminishing as the squares of the distances.

Exercises.

Why not a body set in motion on the earth's surface move on continually? What the requisite force to stop a progressive object? Give the cause of the earth's perpetual motion? Under what circumstances may an object set in motion move on continually? What the course of the earth's motion? What the cause of its circular course? What the inclination of the centrifugal force? What the centripetal force? What the name of the earth's path in the heavens? In what proportion do masses of matter attract each other? Give the proportional powers of attraction?

CHAPTER IV.

Form of the Earth.

That the earth is round, or spherical, may be shewn by many illustrations. There are three general reasons for proving the earth to be of a globular form. The first, and most obvious is, that several seamen have actually sailed round the earth, and, by continuing their course to the westward, returned to the place from which they set out. The second is, that should the earth be a flat surface, as it appears to be, the sun at rising would illuminate it all at the same time; but this is not the case: persons living to the eastward have the appearance of the sun earlier than those living to the west. By this appearance, the ancients first discovered the earth to be a round body from east to west. They also found that the Polar star ascended in the heavens as they proceeded northward from the equator, and descended in the same proportion as they proceeded southward towards the equator. By

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travelling in this way, they became acquainted with stars before unknown to them, and saw those, with which they were familiar, sink as the setting sun. From these appearances, they finally concluded the earth to be a large round ball. The third reason for the sphericity of the earth is found from the eclipses of the moon, which are caused by the moon's entering the earth's shadow in the course of her revolutions round the earth. But, as the eclipses of the moon always appear circular, and, as no body can in all cases cast a circular shadow, except it is spherical, it follows that the earth is, from this circumstance, also globular.

The form of the earth has been found, by measurement, not to be an exact sphere, but of a spheriodical form, which differs from a sphere, by being flattened in opposite directions as an orange, or, drawn out in the form of a lemon. The former is called an oblate spheriod: the latter prolate. The oblate being the true form of the earth. That the earth should not appear globular is caused by its immense size, which, notwithstanding its spherical form, is found to slope only 8 inches in the mile. This increases as the square of the distance, so that at 2 miles the inclination is 2 squared, multiplied by 8, or, 32 inches: and at 3 miles it is found to be 72 inches; by which it follows that the extent of surface coming under the observation of an eye elevated six feet, would amount to 3 miles in each direction; but this bears so small a proportion to the semi-circumference of the earth, as to give no idea of sphericity.

Exercises.

Of what shape is the earth? Give reasons for its sphericity? How has it been found to be round from East to West? From North to South? Another proof for the sphericity of the earth? Is it completely round? What is the difference between a sphere and spheriod? Which does the earth more resemble? Whether oblate or prolate? What is an oblate spheriod? A prolate? What the curvature of the earth per mile? How does this curvature continue on an apparent level surface? How much of the earth may be seen at the height of six feet? Why not the earth appear globular?

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CHAPTER V.

Latitude and Longitude, how determined.

When these names were first applied to the earth, it was considered to be a flat surface, stretching farther from east to west than from north to south; and still may with propriety be so applied, as the equitorial diameter exceeds the polar diameter in the direction of latitude. On each side of the Equator are eight imaginary lines called parallels of latitude, from being, with regard to each other, everywhere equally distant from the Equator; and, therefore, the latitude of every point contained in any of them is the same.

A series of lines drawn from pole to pole over the earth's surface, and cutting the Equator at right angles, are called Meridians; from the Latin, MERIDIES, mid-day. Although there are but 24 of these meridians drawn on the terrestrial globe, still, every place on the earth is supposed to have its meridian. When any meridian comes exactly under the sun, it is mid-day, or 12 o'clock to all places on this meridian, and therefore midnight with those exactly opposite; or, on the meridian, continued to the side opposite the sun. By means of these circles, the latitude and longitude, and consequently the exact position of any place on the earth, is found. They are all divided into 360 degrees, or steps, from the ancients considering that the sun performed its revolution in the heavens in 360 days; that is, a step each day. From this consideration, all circles have been divided into 360 degrees, each degree into 60 equal parts, called minutes, and each minute into 60 equal parts, called seconds, and so on. A degree is 60 Geographical miles, or, 69 and one-tenth English miles.

The latitude of a place is its distance measured from the Equator: if north of that line, it is north latitude, but if south of it, south latitude. There being 180 degrees from pole to pole, and the distance from the Equator to either pole being only half of this, it follows that no place can have more than 90 degrees of latitude, either

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north or south. The longitude of a place is the distance of its meridian from another, which is called the first meridian, which may be assumed any where, provided it is well known, so as to avoid mistakes.

In Germany, the island of Ferro is adopted as the first meridian. In France, the observatory of Paris, and in England, that of Greenwich.

Longitude is reckoned either east or west from the first meridian; 180 degrees is therefore the greatest extent of longitude. Some however reckon longitude all the way round the globe.

Exercises.

What circumstance first gave rise to the terms longitude and latitude? Are the terms strictly correct? How many parallels of latitude are drawn on each side of the equator? Why called parallels? Describe the meridians of longitude? How many drawn on the globe? The meaning of the term meridian? What are these circles useful for determining? Into how many degrees is each circle divided? How many degrees in any circle? State the circumstance of such division? How are these degrees divided? What is the length of a degree on the earth's surface? What is latitude? How measured? What is the greatest amount of latitude? What is longitude? How measured? What its greatest amount? Describe the first meridian? That of Germany? That of France? That of England?

CHAPTER VI.

Measurement of the Earth.

Certain lines have been supposed as drawn on the earth, by which its magnitude may be discovered. The Equator with the parallels of latitude. Any meridian and the Polar star, are chiefly employed in finding the circumference of the earth, and thence its magnitude. It has been found that the circumference of a circle whose diameter is one, is greater than 3.14 15926, and less than 3.14 15927, but by Dr. Thompson's article on Continued Fractions, the ratio of the diameter of any circle to its circumference is nearly as 1 to 3, but still more nearly as 113 to 355; and, therefore, knowing the circumference of any circle, its diameter may be found by a simple proportion sum.

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But as every circle contains 360 degrees, and therefore, from the Equator to either pole 90—by knowing the length of one degree, the length of the 360 may be easily found, and thence the length of the circumference. Now this reasoning may be applied to the earth, as being of a spherical form; but in order to apply it practically, we must first find the length of one degree on the earth's surface. Those who live at the Equator will see the Polar star in their horizon; but, as they approach the north pole, the appearance of the polar star becomes more elevated in the heavens. It is also found, upon close examination, to ascend in the heavens proportionably to the distance passed over in the direction of the north pole.

By this fact, the latitude of any place in the northern hemisphere amounts to the same number of degrees as the elevation of the polar star. Now, knowing the latitude of London, the altitude of the Polar star will be found the same number of degrees above the horizon.

In order therefore to find the length of degree of the meridian, we have only to measure the distance passed over on the earth's surface, while the Polar star is observed either to ascend or descend one degree (allowing at the same time due level for any hilly tract on the earth's surface). It is evident that this distance gone over, will be found to be the length of one degree on the surface of the earth, and by multiplying this last obtained by 360, we shall have the length of the whole circumference. The length of a degree on the earth's surface is found by such measurement to be 69 and one-tenth English statute miles; which, if multiplied by 360, gives 24,890 for the circumference of the earth; and by adopting the former proporton, the diameter will be found to be about 8000 miles. It has been found, by measurement, that a degree of the same meridian is half a mile longer nearer the poles than at the Equator; and, consequently, the earth's surface flatter near the poles: from this circumstance it was discovered that the Equatorial diameter exceeds the Polar by 26 miles.

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Exercises.

What imaginary lines on the earth's surface are chiefly employed to discover its magnitude? What heavenly body? What is the ratio of the diameter of any circle to its circumference? By knowing the circumference of any circle, how may its diameter be found? By knowing the length of a degree, how may the length of the circumference be found? To the inhabitants at the equator, where does the Polar Star appear? At the latitude of London, what is the Polar Star's altitude? How may the length of a degree on the earth's surface be found and the circumference of the earth? How the diameter of the earth? What is the difference of a degree of the same meridian nearer the poles than the equator? What is the consequence of this?

CHAPTER VII.

Diurnal and Annual Motions of the Earth.

The Earth, as an immense globe 8000 miles in diameter, is considered as performing a rotary motion on its axis every 24 hours. This motion varies in velocity from the Equator to the poles: at the Equator it is greatest, travelling hourly 1042 miles, and at London only 644, owing to the Equator being a larger circle than the parallel of latitude on which London stands.

Considering the position of the earth, and also that of the sun, it naturally follows that one-half of the earth is exposed at the same time to the light and heat diffused from that body. To any part of the earth's surface next the sun, it is day; and to those places turned from the sun, it is dark: but, by the rotary motion of the earth on its axis, every portion of its surface comes once in 24 hours towards the sun, and is the cause of what is familiarly known as day and night.

In reality, the earth takes only 23 hours, 56 minutes, 4 seconds, to revolve on its axis, which is called a sideral day, because, by this time, the earth is again in the same position as before with regard to the stars; but, it takes exactly 24 hours to bring the same meridian again opposite the sun: which amount of time is known as an astronomical or natural day. The sideral and astronomi-

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cal day would be alike if the earth had no other motion than that upon her axis; but, the earth has also an annual motion round the sun from west to east, so that by the time she makes one revolution on her axis, she has also progressed in the heavens about a degree westward; thus taking the earth 3 minutes, and 56 seconds, the difference of the sideral and natural day, to bring the same meridian again exactly opposite the sun; from which, it is evident that, if the earth had but the diurnal motion, there would be 366 days in the year.

The moment that any spot on the earth's surface comes directly opposite the sun, it is noon, or 12 o'clock at that place, by which it appears that the time varies in all parts of the earth: when it is mid-day at any particular meridian, it is mid-night at the opposite continuation of the meridian, differing one hour to every 15 degrees of longitude, and one degree to every four minutes of time.

The earth has been found to be 95,000,000 miles from the sun, and revolves round it in a sideral year of 365 days, 6 hours, 9 minutes, and 11 seconds of mean solar time, and travels at the amazing rate of 68,000 miles per hour. It moves round the sun rather in an oval course than exactly circular, somewhat resembling an elipse; the sun being placed, not in the centre, but near one of the ends of the plane of the earth's orbit: by this, it appears that the earth is at one part of its orbit nearer the sun than at others. It is also to be remarked that the earth does not go round the sun in an upright manner, its axis being inclined to its orbit at an angle of 66½ degrees: this inclination is the cause of the circle of *illumination* cutting the parallels of latitude unequally, thereby causing a difference in the length of the day on both sides of the Equator. But at the Equinoxes, the circle of illumination bisects all the parallels of latitude, causing equal day and night from pole to pole. Only for this inclination of the axis of the earth to its orbit, the days and nights would be equal at all times all over the world: it is also the cause of the seasons. The north pole, during one part of the year is inclined towards the

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sun, and the south is therefore dark: during another part of its course, the south pole is turned towards the sun, and the north pole is dark, and, consequently, subject to extreme cold. This is the cause of our well known Summer and Winter.

Exercises.

Explain the diurnal motion of the earth? State its velocity at the equator? At London? What the cause of this difference? How much of the earth is enlightened at the same time? What is the consequence? What a sideral day? What an astronomical or natural? State their difference and cause? Under what circumstances would they be alike? What other motion has the earth? State its daily progress? In what direction does it move? If but the diurnal motion, how many days would the year consist of? When and why mid-day at any particular place? How does noon differ in different places? State the cause of this difference? How far is the sun from the earth? How long does the earth take to go round the sun? At what rate does the earth travel? What the shape of the earth's orbit? In what position does the earth move in its orbit? What the inclination of the earth's axis to its orbit? State the different effects of this inclination?

CHAPTER VIII.

Zones.

The axis of the earth being inclined to the plane of its orbit, and, therefore, cutting it obliquely, and keeping the same position throughout its annual course, causes the poles to be at one time turned towards the sun, while, at another time, they are for the same reason deprived of the sun's rays. Every part of the earth is sometimes more immediately under the sun's rays than at others: but should the earth and sun always keep in a horizontal position with regard to each other, that is, should the axis of the earth be perpendicular to a line drawn through the sun's centre, there would be little or no diversity of heat witnessed by the inhabitants of any one particular part: but if this should be the case, the Equator would be parched with heat, while the other parts of the earth would, in proportion to their distances from the Equator, experience a proportionate heat and

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cold. An example of such a position is experienced at the Equinoxes when the days and nights are equal from pole to pole. The earth, in her orbit, ascends in space at one time over the sun, and again sinks beneath its almost immoveable position: this fact is discernible by the appearance of the sun's ascension in the heavens being considerably higher in Summer than in Winter; thereby diffusing more heat from continuing longer over the horizon.

From the evidence of this variable heat and cold in different parts of the earth, it was deemed proper to divide the globe into five divisions or zones called belts,—two frigid, two temperate, and one torrid zone. The torrid zone extends to 23½ degrees on each side of the Equator: within these lines the heat of the sun is greatest, as it is always vertical to some one part of it, and hence its name Torrid, *burning hot*. The limits of the torrid zone are marked by two imaginary lines; the northern one called the tropic of Cancer, the southern, the tropic of Capricorn.

Beyond these limits the earth receives the rays of the sun more and more obliquely; by which, the heat becomes gradually modified, until it reaches 43 degrees north and south; the limits of which are marked by two other imaginary lines called the Arctic and Antarctic circles. The extent of surface within the tropic of Cancer and the Arctic circle, is called the north Temperate zone (from the heat and cold being more equable than in the other zones); and that between the tropic of Capricorn and the Antarctic circle, the south Temperate zone. The Frigid zones lie between the Arctic circle and the north pole, and between the Antarctic circle and south pole: they are so called from the total absence of the sun during the winter, and his small ascension in the heavens during the summer.

From the sphericity of the earth, it is evident that the zones do not occupy equal extents of surface on the earth: the Torrid zone being more extensive by one-half than either of the Temperate, and ten times more than either of the Frigid.

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Exercises.

What the cause of the poles being alternately turned to and from the sun? What the effects of this? Under what circumstances could this be altered? What would be the effect of a change in the position of the earth? When are the days and nights equal from pole to pole? What the cause of more heat in summer than winter? What is a zone? How many? Name them? Tell the limits of the Torrid? How many degrees does each temperate zone occupy? The Frigid? Name the lines that bound the Torrid zone? The Temperate? Why called Temperate? Why called Frigid? Do the zones occupy equal extents of surface? Why not?

CHAPTER IX.

Diversities of Climate.

Climates are generally diversified according to their proximity to the Equator, and the successive lengths of days from the Equator (where they are always 12 hours long,) to the poles. The increase of half an hour to the length of the day, which is felt at about 8½ degrees from the Equator, is considered to be a measure of time for distinguishing climates from the Equator to the polar circles. Beyond these limits the sun at times is for months above the horizon; from which, it follows that in these regions, the climates succeed each other by months.

Now it is found that the heat and cold experienced in different countries do not in all cases depend on their proximity to the Equator, or the lengths of the days. Countries are found in the same latitude to differ widely in temperature. The city of Lyons, in France, and Montreal, in Canada, are in the same climate, being equally distant from the Equator; still, how widely different in temperature.

Although the proximity of a country to the Equator is a general characteristic of its climate, yet it is subject to many exceptions: the air, by which the earth is surrounded, possesses the power of receiving and retaining the heat of the sun; but this property varies with the degree of its density, and, consequently, in different places on

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the earth. It is also a well known principle that the warmth of the air is greater in valleys than on elevated grounds. It has been found that a pound of air at the level of the sea, and at the elevation of a mile, contains the same amount of heat; but that from the level of the sea feels warmer than the other: this arises from the air being denser at the level of the sea than elsewhere, the one occupying less space than the other.

The air, in proportion to its weight, is capable of containing an equal amount of heat in all places; but it has been shewn to occupy more space in proportion to its distance from the earth; by which, its density becomes more and more diminished, and finally ceases to retain any heat at all. From this, it appears that even in the warmest regions of the earth the tops of mountains are comparatively cold from the incapacity of the air about them to retain the rays of the sun. It is worthy of remark, that in every country there is a point of elevation at which water freezes on all occasions. In Europe, it is called the snow line, and is at an altitude of from 5000 to 6000 feet above the level of the sea. In the warm regions of Africa and America, it is about 14,000 feet high: at these heights, perpetual snow lies unmelted. The warmer regions of Hindostan, at a certain height on Himyla mountains, are as pleasant as northern Europe. The city of Quito, although in the heart of the Torrid zone, from its great altitude, possesses a climate as temperate as that of New York in the north Temperate zone.

Exercises.

How are climates generally diversified? What increase of the day is allowed for a change of climate? How far from the equator does the second climate commence? Give the successive climates to the polar circles? How do the climates succeed each other from the polar circles to the poles? What the cause of this? Strictly speaking, are climates dependant on their proximity to the equator? Give an example of this? What is the great cause of difference in the climates of different places? How do you account for this? Where is the freezing point to be found in Europe? Where in Africa and America? How may a temperate and frigid climate be found in

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the torrid zone? Account for the climate of Quito?

CHAPTER X.

Diversities of Climate concluded.

In addition to the different degrees of heat of the Atmosphere, there are many and other causes which materially affect climate. The exposure of a country to the ungenial winds of the northern Seas, and the periodical winds of the Torrid zone, are well known to encrease and diminish temperature. In valleys and plains, the heat is found to be much warmer than on the surrounding hills: this is accounted for by the rays of the sun striking on the slopes of the hills, or on some adjacent forests, and, from which, they are radiated to the immediate air.

Countries in the vicinity of large lakes, those bordering on the Ocean, and especially Islands, have more equitable climates than the more continental: this is caused by the more cooling temperature of the adjacent waters. In many parts of the continent, particularly Russia, the cold experienced in Winter at places in the same latitude as the city of York, has been so great as to freeze quicksilver, and this cold is found to increase eastward. From this it appears that it is not distance from the Equator, or elevation above the level of the sea, that causes the cold of Russia: another cause must therefore be sought after. It has been supposed that the cause of its ungenial Winter is owing to its distance from the Ocean, the vast tract of land traversed by the north and easterly winds, and the dreary uncultivated surface of the country. It must be remembered, however, that the Summer heat in Russia is in general greater than in other countries under the same degree of latitude. It appears therefore, that the climate of a country is not, strictly speaking, dependant on its distance from the Equator, or any one cause, but is chiefly known by an acquaintance with its position, whether continental or insular; also its particular kind of surface, and other local circumstances.

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It is worthy of remark that the southern Hemisphere is somewhat colder than the northern: this may appear strange, but such is the case. It has been found that there is no inhabited land farther south than the 55th degree of south latitude; and at one degree more, perpetual snow is found to exist. It is difficult perhaps to understand so unseemly an occurrence, but an acquaintance with the earth's orbit, and the relative position of the sun, may help to elucidate the mystery. By conceiving a line to be drawn perpendicularly through the sun's centre, terminating in the sides of the earth's orbit, it will divide the northern portion of the plane of the earth's orbit from the southern.

Now, knowing the sun to occupy the northern end of the plane of its orbit, it is evident that the northern hemisphere will be longer under the influence of the sun during the earth's annual course than the southern: this is a leading cause for the increased temperature of the northern hemisphere. Another cause is, the inequality in the extent of water occupying the surfaces of both hemispheres; the southern being cooler in proportion to its humidity. A third cause is sometimes added, namely, that the Ice of the northern pole is not permitted to escape through the interposition of the adjacent land; whereas, at the south pole, there is no barrier to prevent the rolling Ice to approach the south Temperate zone, and, consequently, alter the temperature by cooling the immediate atmosphere.

Exercises.

What other causes generally affect climates in addition to the proportional heat of the atmosphere? Why vallies warmer than the tops of the surrounding hills? Account for the temperature of countries in the vicinity of lakes? Account for islands? Account for the climate of Russia? Why so variable? What is the conclusion drawn? How are we to judge of the climate of a country? Is the Northern Hemisphere colder than the Southern? Give the reasons generally supposed for so strange a circumstance? At what degree south is perpetual snow found? Is this the case in the Northern?

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CHAPTER XI.

Mountains.

When the surface of the earth in any particular place appears to rise considerably, it is called a mountain: a smaller rising is called a hill. If this mountain or hill stretches a long way, it is denominated a chain; and if called, during its course in different parts by various names, it is termed a chain of mountains; and a collection of those chains is called a *system*,—as the system of the Alps, etc.

The external appearance of mountains differs exceedingly; the only general similarity being that of a conical shape, diminishing as it were in proportion to their heights. Very high mountains appear subject to many modifications; some appearing in the form of large crystals, others as if crowned with large and rocky battlements; while others again present an outline of naked rocks, crowded here and there in every possible manner: these appearances are called by the figures which they naturally resemble, as peaks, domes, needles, forks, etc. A circular hollow, formed by two risings of the same mountain, is called a saddle-ridge. Should the highest be divided into a number of distinct teeth, it is called a serrated ridge, examples of which may be seen in Spain with the term *sierra* affixed, from their resemblance to the teeth of a hand saw.

The excavations formed in the sides of mountains by the descent of streams, are termed ravines; and the hollows which occur between chains of mountains, are called vallies. The slope or slant height of mountains has been considered, at an angle of 45 degrees, to have a gentle inclination; but in proportion to the increase of 45 degrees, the ascent is said to be steep It is worthy of consideration, that mountains are generally steep on one side, while on the others they are easy of ascent. The Pyrenees are much steeper to the south than the north; and the Alps, on the side of Italy, are far steeper than towards Switzerland. Mountains are generally steepest towards the Ocean, an occurrence easily account-

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ed for, as their terminations on that side are, by the interposition of the Ocean, abruptly hindered from a gradual slope. An example of this may be seen in the Himyla mountains being steepest towards India; and even mountains in the vicinity of lakes present their steepest side in the direction of the water.

It has been found that a general connection exists between mountains occupying the same division of the globe. The Dovrefeld mountains are connected with the Uralian by the branch stretching towards the White sea; and the Alps, Carpathian, and Appenines, seem to be connected. In Asia, a chain stretches from northern India to Thibet and Cashmere, and there reaches the height of 26,000 feet, the highest on the earth; it afterwards stretches to Persia and China.

By a reference to the map of the World, a connection may be traced between many chains, from which, it has been supposed that a similar connection exists between the various mountains of the globe.

Exercises.

Describe a mountain? A hill? A chain? A chain of mountains? A system? Give examples? Do mountains differ in appearance? What their general similarity? Give their various appearances? Describe a saddle-ridge? A serrated ridge? Give examples? What are ravines? What the angle requisite for a gentle inclination? How does the ascent increase? Where is the steepest side generally? What the general opinion as regards the connection of mountains? Give examples? What their greatest height?

CHAPTER XII.

Mountains continued.

Some mountains appear to have no connection whatever with others. The rock of Gibralter and other fortresses are of this kind, exhibiting the appearance of a naked rock, while there are others, in a lonely position,

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sequestered from any main chain, covered with excellent verdure and remarkable for symmetry of shape.

Mountains are supposed by some to be formed by the breaking up of the fountains of the great deep at the time of the deluge, but there is no ground for such an opinion. The hills appear to be, from the beginning, evidently the framework of the earth. The softer parts of the earth would, without hills, have no protection against the fury of winds and ever running streams, which have penetrated the hardest rocks. They filter, as it were, the water for our springs, from which the rivers have their source; and they are the storehouses of the richest minerals. By their risings, they encrease the surface of the earth, by giving us more soil to cultivate, and they beautify the natural scenery.

A few remarks on the composition of mountains may not be misplaced. It has been found that the basis of the whole frame of the earth is stone of different species, arranged in due order, each according to the nature of its particular kind. This stonework is covered by a mould composed of pulverized stone, formed by the action of the atmosphere, and amalgamated with the remains of plants and animals, which, at one time, are supposed to have occupied its surface: on this mould depend the natural productions of the earth. From this arrangement in the construction of the globe, we are enabled, through the elevation of mountains, to become acquainted with the nature of rocks, to whose deep recesses we could never have penetrated. These rocks have been found of various descriptions; and, by their composition are chiefly judged the mineral treasures of the earth. The petrifactions, Marine remains, and skeletons of Animals found on mountain tops; the surprise of the traveller are strong proofs of an early universal deluge.

It is, however, to be remarked, that all elevated mountains do not exhibit these appearances, especially those of the most ancient: these contain rocks of the primary order, viz., mica, slate, primitive limestone, protigine, gneiss, and granite, in varieties. The highest

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mountains consist chiefly of granite, which is composed of quartz, mica, and felspar, the usual depositories of gold and silver.

The less elevated hills are found to consist chiefly of breccia, gypsum, and sandstone in varieties, the upper strata exhibiting chalk, and are generally the depositories of copper mines, slate, alum, coal, rock-salt, tin, and warm springs.

Exercises.

Give an account of isolated mountains? What opinions do some hold with regard to mountains? What the most probable? Without mountains, what would naturally occur? What are the great uses of mountains? Of what material is the basis or frame of the earth composed? How are we enabled to discover this? What depends on the different species? What the natural proofs of an early deluge? Name the order of rocks of the higher mountains? Give the attendant metals? The rocks of the less elevated hills? What do they generally contain?

CHAPTER XIII.

Volcanoes.

A volcano is an opening in the earth's surface, formed by the bursting of a subterraneous fire, through which smoke, cinders, and ashes are almost continually coming forth: it also discharges great fragments of rock, and large quantities of melted rocky matter. Their origin, or the fuel by which they are maintained, or at what depth below the surface of the earth they are placed, are matters not easily determined. They are generally in the form of a sugar loaf, with a mouth in the shape of a cap; but the matter often breaks out at the sides. When the matter is hindered from bursting forth, earthquakes are the consequences.

It is to be remarked, however, that they are not now so numerous as formerly: traces of them have been found in England, France, and Germany: they are not

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peculiar to any particular part of the earth; they burst forth from plains and from great depths below the ocean. There are about 200 at present in activity throughout the earth; the greater part of which belong to the western coast of North and South America. The islands of the Pacific ocean, the Indian ocean, and central Asia possess many. In Europe there are but three in activity; Etna, in Sicily, Hecla, in Iceland, and Vesuvius, in Italy. As these eruptions of nature sometimes happen under the sea, it is most probable there are many more than 200 throughout the globe.

The powerful agency of volcanoes in throwing up large quantities of solid matter may be understood by the past eruptions of Etna. At one time, the mountain for 150 miles in circumference was covered with sand and ashes, averaging a depth of 12 feet. The accounts of Herculaneum and Pompeii are too well known to be dwelt upon. It has been reported that all the matter discharged by Etna would form a mass 20 times as large as the mountain itself; that is, 20 times as large as a mountain 10,870 feet high, and 30 miles in diameter at the bottom.

In the year 1538, a large hill was thrown up near Naples in one night, since called Monte Nuove. In Mexico, a sudden eruption in a plantation left six hills, varying from 300 to 1600 feet high.

Of volcanoes, that take place under the sea, some remarks may be made. In 1811, an island appeared evidently thrown up by volcanic agency near the Azores: at first, cinders were thrown up 700 feet above the sea; and, in a few days, the island was one mile in circumference, and 300 feet high. The bay of Santorin, in the Grecian Archipelago, nearly 6 miles long and 4 broad, about 3 years ago contained 3 volcanic islands: the first rose at the beginning of the third century, the second, in the seventeenth century, and the third, in the year 1709. Very lately an island was discovered to rise near New Zealand, consisting of a solid rock with a pool in the middle, emitting smoke from several chinks.

It is reported of Chili, that 15 craters alone are in ac-

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tivity; but those of Peru are more numerous and terrible: Mexico and California, and the Isthmus of Kampschatka, contain many burning mountains, and Stromboli is termed the lighthouse of the Mediterranean.

Exercises.

Describe a volcano? Of what does the lava consist? Are their causes and origin known? What is their usual form? What the probable consequences should the fire be hindered from bursting? Are they so numerous now as formerly? Where have their traces been found? Are they confined to any particular part? What is the probable number in activity? Name the countries most likely to possess them? Give some account of Etna? Give an account of one near Naples? In Mexico? Give an account of eruptions under the sea? Where is Stromboli? Near what group of islands?

CHAPTER XIV.

Caverns and Fossil Remains.

The surface and interior of mountains have undergone many changes. Caverns have been formed by earthquakes, by streaming water, by the sinking of portions of the earth, and especially by internal fires. They are of various forms and appearances, and sometimes found to be 1000 feet deep, while others again run through mountains in a horizontal line. In some of these caverns the interior appears exceedingly beautiful by the stalectite columns resembling gems, in the form of icicles, and other curious concretions formed by the water dribbling from the roof and sides. When these caves are entered by torch light, their appearance is still more magnificent.

Fingal cave, usually called the musical cave, in the island of Staffa, opens with a breadth of 42 feet, with a height of 66 feet, a pillar of 36 feet on one side, and 18 on the other. The depth of the recess is 227 feet, and the breadth, at the inner end, 22 feet. Some caverns have streams of water running through them; some, clear springs; while others are traversed by winds.

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The most remarkable in Great Britain are Castleton, Pool's Hole, and Fingal already explained. Egypt possesses Ombos; Naples, Del Cave; Switzerland, those of Mount Pilate; Spain, Sarceres in Cevennes, the grotto of Antiparos, and the labyrinth in Creti.

On the highest mountains are found petrifactions, or organic bodies so formed by the lapse of time: these petrifactions are found to consist of plants of every description, and animals of every species: they are not confined to any particular place, as there are few countries without them. In the northern regions are dug from the earth the remains of animals of the Torrid zone, which, if now animated, could ill bear the cold of the northern seas.

Marine discoveries have been found at the height of 14,120 feet on the Andes. The remains of a sea turtle were dug up not long since in the stone ridge of Harwich, which weighed 180 lbs. The petrified shells found in England, are often such as belong to fishes on the coast of Florida. The remains of an animal called the Mammoth, from considering it a distinct genus, but now called the fossil elephant, as being an extinct species of that animal, have been discovered in Siberia with portions of the flesh and hair preserved with the bones by means of the ice. The remains of this animal, found in Italy and other parts of Europe, first lead to the suspicion that they were the remains of Elephants brought by the Romans from Africa and Asia; but the quantities of them found in Russia and other parts, where Elephants were never brought as oriental tributes to Rome, evidently shew that they were driven there by the force of a flood, or some other natural cause. Elephants, Whales, and Rhinoceros have been discovered in Germany. Bones and teeth of animals have been found in caverns, apparently long occupants of those subterraneous abodes. Such singular appearances of these relics of antiquity, render it difficult to determine the cause of their promiscuous dispersion over the earth.

Exercises.

Account for caverns? What their greatest depth as yet discovered?

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Do they always descend? By what is their appearance beautified? Entered by torch light, what the result? Describe Fingal cave? Give an account of the interiors of some caves? Account for petrifactions and fossil remains found on mountains? Are they confined to any particular place? Have any been found on the Andes? What on Harwich ridge? The petrified shells found in England? Account for the remains of the Mammoth? What the probable opinion? Give reasons? What the natural consequence deduced? Give an account of fossil remains found in Germany? In caverns?

CHAPTER XV.

Plains and Deserts.

Plains are designated by an apparent level, or slight undulation of the earth's surface to any considerable extent. They occur, to a greater or less degree, with comparatively small inequalities in all parts of the earth. A considerable portion of northern Europe forms a vast plain, comprising the Netherlands, Denmark, the northern districts of Germany and France, a large portion of Poland, and almost all European Russia. The greatest elevation that occurs in this vast region, is the Valdai range, not exceeding 1200 feet. The Uralian mountains are the only barrier between this immense plain and another of yet greater extent, *the Siberian lowlands*, occupying nearly the whole of northern Asia.

It may be remarked, that these plains are not entirely destitute of cultivation, although in many parts covered with peat bogs, morasses, etc., abundant crops of grain and other produce mark their character, as also large forests of birch and pine. The plains of Europe, when compared with those of the other continents, differ widely both in appearance and extent. In Africa, a vast plain extends across the northern districts, stretching from the Atlantic to the valley of the Nile, and terminated on the south, by the elevated land extending from Cape Verde to the Abyssinian mountains.

The greater part of the plain called Sahara, or the

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Great desert, contains an immense zone of sand of 2470 miles long, by 900 wide; in some parts broken by small hills of sandstone, and by verdant spots called wady's or oases, which appear like islands in the ocean. The most considerable of the latter, form the principalities of Fezzen and Darfur, but Shinah, the Palms of which cover the ruins of the ancient temple of Ammon, though not the largest, is the most celebrated. In North America, the vast valley of the Mississippi presents a magnificent plain; but, from its very level surface, is subject to great inundations. The more elevated parts consist of alternate forests and prairies, or natural meadows, abounding in wild animals.

South America possesses many low-lands called Illanos or Pampas, and Savanahs which are very numerous. They are divided into three basins, the Orinocoo in the north, the Mararon or Amazons in the middle, and the third great low-land forms the basin of Paraguay and La Plata.

Another class of plains called Plateaus, or table lands, so called from being more elevated above the sea, and occasionally of a table-like form, deserve some notice. Some of these are of great extent, and retain a general elevation of several thousand feet above the sea. The most considerable in Europe is that of central Spain. In Asia, Thibet and the deserts of Cobi and Shamoo, which form a vast plateau of 10,000 feet above the level of the sea.

In America, the table land of Mexico has a general elevation of 7000 feet, but its surface is very hilly, undulating from 1 to 1000 feet.

Exercises.

Describe a plain? Are plains universal? In what parts of Europe do they chiefly exist? By what hills is the great European plain broken? By what the great northern plain of Russia? Are plains entirely without cultivation? In what respect do the European plains differ from those of the other continents? Describe the Sahara? The Oases? Describe some American plains? The divisions of the South American plains? Account for plateaus or table lands? Why so called?

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CHAPTER XVI.

The Ocean.

The many seas (nominally so called) form but one capacious bed of water resting in the hollows of the solid structure of the earth, and covering not less than two-thirds of its surface: its greatest depth is believed to be about 30,000 feet, or between 4 and 5 miles, which is rather more than the height of the highest land above its surface. It may be remarked, that in consequence of the pressure of its waters, no sounding-bell or mariner's apparatus can penetrate or sink more than 5000 feet below its surface.

This large quantity of water which composes the ocean, in obedience to the laws of evaporation and condensation, remains unalterably fixed, without either increase or decrease. Should the waters increase by one-fourth its usual amount, the globe would be covered, excepting the tops of the highest hills; and, should the waters decrease by the same amount, the opposite to this would be the result; the largest rivers would dwindle to the capacity of brooks; commerce would be impeded by the drying of arms of the sea, on which some cities have been built; the earth would be deprived of its due proportion of humidity; and the whole face of nature would be rendered desolate.

The similarity existing between the sea and land is very striking: the bottom, or bed of the ocean, has a surface composed of heights and hollows, rocky projections, caverns, hills and vales, sandbanks and reefs. It bears a luxurious vegetation, consisting of plants of various kinds, all suited to their respective localities. It has also its tribes of Animals, a brief outline of which, in this limited space, would be impossible to give.

When the more elevated projections from the bed of the ocean rise to any height above the level of its surface, islands are formed; from this, it appears that the tracts of dry land are, in one sense, the tops of mountains rising from the bottom of the deep.

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Exercises.

What is the ocean? To what extent does it cover the earth's surface? What is its supposed depth? To what depth has it been penetrated? By what laws does it remain without any apparent increase or diminution? Should the waters of the sea overflow one-fourth of the earth's surface, what would be the consequence? Should it decrease in proportion? Describe the similarity existing between the sea and land? With regard to the ocean, what are islands and continents supposed to be?

CHAPTER XVII.

Tides.

The alternate flowing and ebbing of the waters of the ocean, usually called *tides*, appeared to the ancients as one of the greatest mysteries of the natural world. Their cause, however, through the philosophy of Newton, has been satisfactorily shown as concentrated in the attractive influence of the sun and moon. The waters of the sea are observed to swell or flow up gradually for the space of 6 hours into the mouths of rivers, and, finally, to wash the coasts. This appearance is denominated *flood tide*. It rests in this position for about 12 minutes, when the waters begin again to ebb or return gradually for six hours more, when it again rests for 12 minutes, during which it is said to be *low water*.

This phenomenon is witnessed every day; from which it appears, that in the space of 24 hours and about 48 or 50 minutes, there are two tides.

In a previous chapter it was shewn, that all masses of matter, by the law of universal attraction, have a tendency to come together. The moon, therefore, and the earth, as masses of matter, possess this quality; but, as in the case of the earth and sun, they are prevented in like manner from coming into contact. The attractive influence of the moon however acts more powerfully on the waters of the earth, so much so, that it draws the waters, (as being of a lighter quality,) in a certain degree, from the

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hollows of the earth. By this it would appear, that the waters of the ocean, by the rotary motion of the earth, become completely agitated; more especially those which are more immediately under the moon. To places exactly under the moon, as well as those on the opposite side of the earth, or the side farthest from the moon, it is high water or flood tide; that is, when it is high water at longitude 0, it is also high water at longitude 180.

That the waters immediately under the moon should be raised from the earth may appear clear; but that those on the opposite side, or the side farthest from the moon should also be raised, may appear strange. The universal known cause for such an occurrence is accounted for in the following manner. It has been before remarked that the moon, in revolving round the earth, has a tendency to draw the earth after it, or out of its proper place, which it does in a small degree. By this the waters exactly under the moon are not only drawn up in a heap, but the land beneath the waters is also drawn to a certain amount in the direction of the moon; thus leaving the waters on the side farthest from the sun behind, thereby causing them to form a heap similar to that under the moon.

Now it is evident from the rotary motion of the earth, that two tides must occur in all places in the course of the day, which gradually diminish in magnitude from the Equator (where they are greatest) to the poles, where they are scarcely discernible. The sun, in addition to the moon, is also known to exercise an attractive influence on the ocean, but, from his great distance, the effect is but little. At the new and full moon, the earth, sun, and moon lie nearly in a straight line, by which the waters of the earth become more powerfully attracted in the same direction, causing what is generally known as Spring or high tides; but when the moon is in her quarters, that is, when two straight lines, drawn from the sun and moon to the centre of the earth, would form a right angle, they attract in different directions, thereby diminishing the waters under the moon, causing what is known as neap or low tides.

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It is to be remarked, that spring and neap tides can happen but twice in the month, as they are completely depending on the moon's revolution round the earth. In small seas and lakes, as the Baltic and Mediterranean, the tides are very low, owing to the small expanse of water occupying these seas becoming entirely attracted at the same time. The appearance of three or four risings in some parts is a complete deception on the general principle, the risings being caused by the irregular passage of those coasts to admit the tidal wave.

That the tides should be 50 minutes later every day is accounted for in the following manner: during the earth's rotary motion, the moon advances in her orbit 13 degrees, thereby taking the earth 24 hours and 50 minutes, to bring the same meridian under the attractive influence of the moon. Should the moon cease to revolve round the earth, there would be exactly two tides in the space of 24 hours.

Exercises.

To whom are we indebted for the theory of the tides? Describe their phenomenon? On what does the perpetual motion of the water depend? Why should the water be thus so easily attracted? Where are the waters most agitated? What is the effect of this? When it is high water at longitude 0 what is it at longitude 180? Account for this occurrence? How many tides in the day? Account for spring and neap tides? The smaller tides of the Baltic and other seas? The appearance of three and four risings on some coasts? Account for the tides being 50 minutes later every day?

CHAPTER XVIII.

Lakes.

Lakes are defined as sheets of water surrounded by land, and may be either small or large. They differ from ponds as being fed by streams, either flowing or subterraneous, while the latter is an accumulation of rain water only. Lakes, entirely fed by subterraneous streams, are more lasting than those supplied by running streams, the

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latter being liable to be filled by deposits of earth and sand carried from the soil, through which the streams pass. Those lakes depending on subterraneous streams, are generally small, the largest being hardly 12 miles in circumference, and six or seven feet deep: they are very numerous north of the Caspian, and also in northern Russia, some of which are found to be salt. The Caspian is the largest lake that receives the waters of rivers without any outlet. The Dead sea, and the sea of Aral, are also of this kind, which are common in Asia. It is worthy of remark, that some of those lakes at one time had outlets, but being now so much below their original level, they have ceased to emit any. The cause of this rare circumstance must be, that those lakes do not now receive as much water as formerly, or that evaporation or subaqueous drainage has exceeded the amount received. The lakes Balaton and Neusiedec in Hungary, are examples of dimished outlets. The sea of Aral is generally believed at one time to have communicated with the Caspian.

Another class of lakes appear to have no affluent, although possessed of outlets. These lakes are generally situated at a considerable elevation, and from them the largest rivers flow. The Volga flows from a lake of this kind, in the government of Tver, in Russia.

Another class of lakes have both affluents and outlets, are most common, and generally the largest. The lakes of Switzerland, the lakes Ladoga and Onega, and the great lakes of America, whose chief outlet is the St. Lawrence, are of this class. Some lakes are formed by the sinking of the soil, or the falling in of some subterraneous caverns, as is the supposed origin of lake Baikal: others again are formed by earthquakes, and some by the falling in of mountains, as the Oscherren-see in Switzerland. Some lakes are said to have a double bottom, which changes the apparent depth of the lake, by rising and sinking alternately: some again possess floating islands, as the lake Gerdeen, in Prussia, on which many head of cattle may be seen grazing.

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The waters of some lakes are remarkably transparent; those of lake Superior are so clear, that the fish and rocks may be seen at an incredible depth: the transparency of the Norwegian lakes is much spoken of; at the depth of 100 feet, the surface of the bottom is perfectly visible. In lake Wetter, in Sweden, a farthing may be seen at twenty fathoms deep.

Some lakes appear and disappear periodically, as lake Cirknitz in Illyria; but this depends on the increase or diminution of the sources from which their waters come.

Exercises.

Define a lake? A pond? How are lakes supplied? Describe those fed by subterraneous streams? Which is the largest lake receiving the waters of rivers without an outlet? Name some lakes of this kind? Describe the lakes Balaton and Neusiedec of Hungary? What is the general opinion of the sea of Aral? Describe those lakes having outlets only? Describe those having both affluents and outlets? Which class of lakes are the most numerous? What is the supposed origin of lake Baikal? What of Oscherren-See of Switzerland? What the peculiarities of lake Gerdeen, in Prussia? Describe the waters of lake Superior? The Norwegian lakes? Lake Wetter, in Sweden? Lake Cirknitz in Illyria?

CHAPTER XIX.

Rivers.

Rivers are floating bodies of water rising in the land, and running into the sea: the place from which a river rises is called its source or spring, and its entrance at the sea is called its mouth. Most large rivers discharge their waters by several mouths, as the Nile, Ganges, Rhine, and Orinocoo, while others enter the sea by one mouth only, as the St. Lawrence, in North America, and La Plata, in South America. The magnitude of rivers generally depends on the insular position of their sources,

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and the extent of country drained by them; hence they are of various lengths, breadths, and depths; and what is more they are found even to differ in these respects being in some parts of their course wider than in others.

The Amazon, with its tributaries, has been said to drain as great a territory as the whole continent of Europe.

Rivers, when met in their course by sudden declivities, form rapids; and, when suddenly precipitated over high rocks, cascades and cataracts are formed.

The sources of rivers are mostly springs, but some are formed by the overflowings of lakes. Most rivers in their passage to the ocean, become augmented by other streams, such as rivulets and brooks, together with water drained from high grounds and mountains. Rivers, for the most part, take their rise among mountains, especially those of the greatest magnitude, from whence they pass through the vales below. It is necessary to remark, that the melting of ice and snow from the neighbouring mountains, frequently increases the water in rivers, so as to occasion them in many cases to overflow their banks, and inundate the adjacent country: this additional supply greatly accelerates the velocity of rivers; from which, it appears, that the deeper a river is, the greater is its velocity, for the greater will be the force of the waters behind upon those next the sea. The rapidity of rivers is not in every case proportional to the descent, for a broad river will not flow with such force, as one whose banks are more confined.

Some rivers, during their course, carry large quantities of matter, which they deposit at their mouths: these deposits from their resemblance to the fourth letter of the greek alphabet, are called deltas. A delta is formed by the river at an inland point, dividing itself into two streams, which flow in a triangular form to the ocean, enclosing the space which forms the delta. The delta of the Ganges is 220 miles in one direction, by the same number in another, and the lower part, which is inhabited by crocodiles, is about as large as the principality of Wales.

The Danube is more rapid than the Rhine, although

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the Rhine passes through a greater declivity. The most rapid in Europe are the Rhone and Inn: in America, the Missouri: and in China, the Hoangho.

Exercises.

What is a river? What its place of rising called? Its entrance at the sea? By how many mouths does the St. Lawrence and La Plata enter the sea? On what does the magnitude of a river depend? The extent of the Amazon? How are rapids formed? How cascades and cataracts? Where do rivers generally rise? How are rivers augmented? By what causes do some overflow their banks? What is the effect on the motion of the river? Is the rapidity proportional to the descent? What is a delta? How are deltas formed? What the origin of the word? What the magnitude of the delta of the Ganges? Name the most rapid rivers in Europe? In America? In China?

CHAPTER XX.

Rivers continued.

It is impossible to determine the quantity of water discharged by any river, as the discharge is always in proportion to the amount received, but as the latter depends on the rain and snow that may fall upon the neighbouring mountains, and surrounding countries; a river may be at one time low, and at another full.

The river Po has been supposed, from observations made on the rapidity of its waters, to discharge into the sea, 5068 millions of cubic feet daily. The Thames, from observations is found to move but slowly, scarcely 4 miles an hour. From such observations, it has been supposed, that all the rivers in the world may supply about 13,600 cubic miles of water in one year to the sea. The Mediterranean has been known to lose, by exhalation, double the quantity of water received from rivers and brooks. The water of the Mediterranean thus exhaled, may however fall again in the form of rain upon

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its own surface, as also on that of the Atlantic, Pacific, and Indian oceans: that falling on the earth is found to nourish vegetables of every shape and form, and the overplus to find its way into the cavities of the earth, when it again supplies those rivers by which it was discharged to the sea.

The uses of rivers are so well known as scarcely to need any description: in order however to add to their character, some remarks must be made on their natural beauties.

Besides their usefulness in nourishing fishes, fertilizing countries, facilitating commerce, working mills, etc. etc., they greatly beautify the face of the country, and add new lustre to the scenery of the valleys.

In Persia, many rivers have been found to dry up in the warm months, and fill again in winter, or the rainy months: many again are lost or disappear ere they reach any extensive reservoirs. The Rhone, on the borders of Switzerland, disappears, but rises again at a distance of 800 feet: the Gaudiana of Spain, is in like manner lost for several miles. The annual and semi-annual floods of most large rivers are very remarkable, the St. Lawrence of North America, being perhaps the only exception. In the Torrid zone, these floods are most common, and generally occur in the rainy seasons.

The Nile, Ganges, and Mississippi, often rise 30 feet above their common level: many branches of the Mississippi rise considerably higher, and the Orinocoo often rises to the height of 120 feet, covering the country for 100 miles in breadth. The floods of some rivers are often very destructive, sweeping away houses and villages. The flood of the Ganges, at one time destroyed about 100,000 people. These inundations are highly useful, by leaving behind them deposits of vegetables, slime, and mud, which accounts for the vales they overwhelm, being characterized as the most fertile spots on earth. Egypt, for example, is entirely dependent on the deposits of the Nile for its fertility.

It is a remarkable fact, that in consequence of

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the currents of some rivers being so powerful, their waters may be known from that of the ocean at a considerable distance from the shore.

The Amazon is said to remain fresh 240 miles from the coast; and in the same river, the tide is discovered 500 miles from its mouth: in the Thames, at 70 miles.

Exercises.

Under what circumstances may a river at times be full and low? What observations have been made on the Po with regard to the amount of water it discharges into the Adriatic? What the rapidity of the Thames? What supposition has been made as to the amount of water discharged by all rivers? Does this water then remain in the sea? What are the uses of exhalation? What observations have been made on the Mediterranean? What re the particular uses of rivers? State the peculiarities of some rivers? The Rhone and Gaudiana? Name some large rivers whose waters flood at certain periods? State the greatest height their waters rise to? Are these floods ever destructive? Are they useful? To what distance from the coast does the Amazon retain its freshness? To what distance from its mouth are the tides discernible? To what distance in the Thames?

CHAPTER XXI.

Rivers continued.

PRINCIPAL EUROPEAN RIVERS DESCRIBED.

The Volga, one of the largest rivers in Europe, rises in the Valdai hills, in northern Russia, and, after many turnings during a course of 1700 miles, enters the Caspian sea, by seven large mouths. It has a navigable communication with all rivers entering lake Ladoga, which is continued to the Baltic by the Neva; thus connecting the Caspian with the Baltic.

The Danube, next to the Volga, is the largest in Europe; it takes its rise in Swabia, bordering on Alsaac, in the Black Forest, and is navigable to Ulm: from thence, it passes Vienna, Presburg, and Belgrade, and enters the

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Black Sea by several mouths. This river is very wide and deep, and, receives during its course, 60 other rivers.

The Rhine, the next in size to the Danube, rises in two springs on the highest part of the Alps, in Switzerland; flows through lake Constance, and thence to the German Ocean. The various cataracts of this river interrupt its navigation; the chief of them is at Shauffausen, where the whole river is precipitated from a height of 75 feet.

The Tagus rises in a chain of mountains, 150 miles to the south of the Pyrenees; and, after a course of 450 miles, enters the Atlantic at Lisbon. From its tributaries, this river becomes a noble stream; and its estuary forms a capacious harbour for shipping, which is from two to nine miles in breadth.

The Gaudiana rises in New Castile, from whence it enters the Bay of Cadiz. It runs a considerable way under ground, when it again emerges.

The Rhone is a large and rapid river, rising about five miles from the source of the Rhine; it flows through the lake of Geneva, passes the city of Lyons, and enters the Mediterranean after a course of about 500 miles.

The Vistula rises in the Carpathian mountains, near Silesia, and enters the Baltic by three mouths at Dantzic. It is navigable for several hundred miles, thus conveying corn and other articles from the interior of Poland.

The Elbe, one of the largest rivers of Germany, rises in Silesia, and enters the German sea below Hamburgh. The tide in this river runs ten miles above Hamburgh, to which city it conveys vessels of the greatest burden.

The Oder, falling into the Baltic sea, is connected by canals with the Elbe and Vistula, and hence becomes of great importance to commerce.

The Seine remarkable for its picturesque appearance; rises in Burgundy, and flows through a number of beautiful vallies to Paris, from whence it runs to the English channel.

The Thames is one of the most celebrated rivers of the world, notwithstanding its limited course; it rises in the

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Cotswold hills, Gloucestershire, and runs into the German Ocean. Merchant ships of 800 tons burden are often seen at the quays close to London bridge. The tide flows up as far as Richmond, about 70 miles from the ocean.

The Severn, the second river of note in England, rises at Plinlimmon, in Wales, and, receiving the waters of the Roden and Tern, near Shrewsbury, thence continues its course into Worcestershire, where it receives the waters of the Stour. During its course to the Bristol Channel, it is joined by the Terne and Upper Avon. The tide in this river flows as far up as Tewkesbury, nearly 70 miles from its mouth.

The Shannon is a noble river of Ireland, larger than any in England, yet not navigable above 50 miles, on account of a ridge of rocks running across it near Limerick. Its length is about 200 miles, and, during its course, it forms some beautiful lakes, some of which are about 15 miles in extent.

Exercises.

Describe the source, course, and fall of the Volga? The Danube? The Rhine? How is the navigation of the Rhine interrupted? Its chief cataract? The Tagus, its source and fall? The Rhone, its source, course, and fall? The Vistula? The Elbe? The Oder? The Seine? The Thames? The Severn? The Shannon?

CHAPTER XXII.

Rivers continued.

PRINCIPAL ASIATIC RIVERS DESCRIBED.

The Obi, in Asiatic Russia, is a large river rising on the southern side of the Altai mountains, and running northward into the Frozen Ocean, divides a considerable part of that empire from Europe.

The Hoangho, a celebrated river of China, rises

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among the mountains of Thibet: though broad and rapid, it becomes in many places so shallow, as to interrupt navigation. It is also accustomed to overflow its banks.

The Kiangku rises in the same mountains as the Hoangho, they for some distance flow near each other when they separate to a distance of about 1000 miles: they enter the same sea about 100 miles apart. These rivers are the largest in the old Continent.

The Lena, a large river of Asiatic Russia, rises to the west of lake Baikal: its channel is broad and deep, containing many Islands.

The Amour, a large river rising in Chinese Tartary, enters the sea at Ochotsk. It was first known to the Russians in 1639.

The Indus, a large river of Hindostan, is supposed to take its rise on the north side of the Himyla mountains, when after a long course, falls into the Arabian or Persian gulf by several channels.

The Ganges, a celebrated river of Hindostan, whose source for a considerable time was uncertain, has, however, by a recent survey, been found to issue from a small stream under a mass of perpetual snow accumulated on the southern side of the lofty Himyla. It becomes navigable shortly after its gushing through an opening at Hurdwar, from whence it flows in a south easterly direction to the Bay of Bengal.

The Burrampooter, one of the largest rivers of India, rises in Thibet, near to the source of the Indus. It first flows through part of China and Assam; from the latter it takes a southerly direction, and enters the Bay of Bengal, after a course of 2000 miles.

The Jihon, or the ancient Oxus, flows through Independent Tartary. It formerly emptied itself into the Caspian, but now falls into the sea of Aral.

The Irrawaddy, the chief river of the Birman Empire, is supposed to rise in the eastern side of Thibet.

The Euphrates and Tigris rise among the mountains of Armenia, about 15 miles asunder. They are made to communicate by several artificial cuts; after which, they

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unite at the town of Korna, about 100 miles from the sea. The country lying between these rivers is known in history as the ancient Mesopotamia.

The Jordan, also called Orden, rises in a little lake on Mount Hermon, from whence it flows through lake Hoolya, or Merom, and the lake of Tiberia, or Tibereas, into the Dead sea. It never reaches the Ocean, and its length is about 112 miles.

Exercises.

Describe the Obi? Its rise, course, and fall? The Hoangho? Its peculiarities? The Kiang Ku? Its relation to the Hoangho? Name the longest rivers of the old continent? Describe the Lena? The Amour, when first known to the Russians? The Indus? The Ganges? Its rise and fall? The Burrampooter? The Jihon? The Irrawaddy? Euphrates and its relation to the Tigris? Name the country between the rivers? The Jordan, its rise and fall?

CHAPTER XXIII.

Rivers continued.

PRINCIPAL AFRICAN RIVERS DESCRIBED.

The chief rivers of Africa are the Nile and Niger. The Nile has two sources, one a long way to the west of the other. The western and true source rises near the mountains of the Moon, and forms the White river: the eastern source rises in the Abyssinian territory, and forms the Blue river. These arms unite at Harfaia, a distance to the north of the town of Sennaar, and form, jointly, the majestic river flowing through Nubia and Egypt into the Mediterranean. There are two cataracts in the Nile, the one in Nubia, and the other forms the southern frontier of Egypt: from the latter the river runs through the long valley of Egypt and enters the sea by seven mouths.

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The Niger, a great river of central Africa, is but imperfectly known. It is supposed however to rise in western Guinea, from whence it runs for an immense distance, mostly in an easterly direction, till it enters the gulf of Guinea. It communicates artificially with lake Tchad, and is at certain times supposed to communicate with the Nile of Egypt. In exploring the source of this river, many have fallen victims to the suspicions of the natives, or to the intolerable heat of the burning sun.

In the westermost part of Africa, there are many large rivers running into the Atlantic ocean, as the Senegal and Gambia. Among the southern rivers may be mentioned the Congo, which rises near the Equator, separating the two states of Congo and Loango, from whence it enters the Atlantic ocean. The Orange river waters the southern extremity of Africa, forming part of the boundary of the Cape colony. It runs across the continent in a westerly direction into the Atlantic. The soil on the banks of the Congo is very fertile, but the climate is intensely warm.

Exercises.

Name the chief rivers of Africa? Describe the sources of the Nile? Describe the cataracts of the Nile? Into what sea does the Nile fall, and by how many mouths does it enter? Describe the river Niger? Its probable rise? With what lakes does it communicate? What the consequences of exploring the source of the Niger? Name the western rivers of Africa? Name the southern? Describe the banks of the Congo?

CHAPTER XXIV.

Rivers continued.

PRINCIPAL AMERICAN RIVERS DESCRIBED.

The Mississippi, with the Missouri, in North America, considering the length of its course and the quantity of water it discharges into the ocean, is one of the longest

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rivers of the world. It has its source in Upper Red lake. The Mississippi receives the waters of the Missouri a little to the South of St. Louis, and, until the years 1804, 1805, and 1806, was but little known. The Mississippi is navigable for 2400 miles; is of great depth, and overflows its banks every spring, laying the country for several miles under water. The Missouri is the great western branch of the Mississippi, and is much larger than the eastern branch. It is navigable for boats to the great falls, 3970 miles by the river from the Mexican gulf. The Mississippi rises near the west end of lake Superior, and runs southward into the gulf of Mexico. Its branches are mighty rivers and very numerous, spreading from the Alleghany to the Rocky mountains. The length of the Missouri, from its source in the Rocky mountains, to the mouth of the Mississippi, exceeds 4500 miles.

The St. Lawrence, issuing from lake Ontario, is the chief outlet of five great lakes, viz: Superior, Huron, Michigan, Erie, and Ontario. It is navigable for 580 miles from the sea, and ranks among the first for magnificence and grandeur.

The Columbia rises in the Rocky mountains, and falls into the Pacific ocean.

The Mackenzie falls into the Frozen ocean in 70 degrees north latitude, and is the outlet of the Slave lake. Its most distant sources are the Peace and Elk rivers.

The Nelson river is the outlet of the lake Winnipeg.

The Ohio is a large river running along the whole southern border of the Ohio state, 420 miles long. The Ohio forms the boundary of five states, and the Delaware of four.

The Amazon is the largest river in the world, exceeded in length only by the Missouri. It falls into the Atlantic under the Equator, by a mouth 150 miles wide. This river being strengthened by so many large branches its sources must be exceedingly numerous. The largest branch is called Paro, whose source is in a small lake 16 degrees south of the Equator. The swellings of this river, caused by the periodical rains, are very great, over-

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flowing large tracts of country for several hundred miles. This mighty river is navigable for vessels of 500 tons burden to the foot of the Andes, a distance of 4000 miles.

The Rio de la Plata, or silver river, is formed by the Uraguay and Parana, which unite near the city of Buenos Ayres. These branches both rise in Brazil. The La Plata is 150 miles broad at its mouth, and 30 at 200 miles from its mouth.

The Orinocoo of South America, is a large river, and falls into the ocean opposite the island of Trinidad by 50 mouths. The Orinocoo, flowing through a flat country, escapes to the ocean by many channels. During the rainy season it inundates to a great extent the immense plain through which it flows.

Exercises.

Describe the Mississippi through the course of the Missouri? To what distance is the Mississippi navigable? To what distance is the Missouri navigable for boats? Where is the source of the Mississippi? Its fall? The length of the Missouri from the gulf of Mexico? The source of the St. Lawrence? Name the lakes of which it is the outlet? How far is it navigable? Describe the river Mackenzie? The Nelson? The Ohio? Describe the Amazon? Its Fall? What the width of its mouth? Name its largest branch? What the source of the Paro? To what distance is this river navigated? Describe the Rio de La Plata? The width of its mouth? Describe the Orinocoo? Its fall, and by how many mouths does it enter? Describe its overflowings?

CHAPTER XXV.

Springs and Fountains.

Of all the causes of natural effects, that of the constant flow of springs is perhaps the most mysterious. From their inexhaustible and secret storehouses Rivers are supplied, which, from other causes, are kept within due limits from overwhelming countries in their course. There

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have been many opinions as to the probable cause of springs. Three however deserve especial notice: the first is, that sea water is conveyed through the cavities of the earth to the sources of springs; but this is objected to, on the ground that the sea cannot rise to the tops of mountains, where springs are so often found; it being a law of nature for water to retain its own level. This supposition is, however, supported by saying that the internal heat of mountains rarifies the water, by which it ascends in vapours through the interior parts of the earth.

The second hypothesis advanced is that of Capillary attraction, so named from the appearance of water rising in an open tube above its level, when dipt in the liquid. On the same principle, water is supposed to rise from the depth of the sea through porous parts of the earth. This supposition is objected to by saying, that water may rise to the top of a tube, by the attraction of the parts above the fluid, yet it can rise no higher: by which it appears, that, though the water of the sea may be drawn by attraction into the pores of the earth, yet it cannot by this means, be drawn to a cavity so as to become the source of a spring.

The third hypothesis, and that which is universally received, was first advanced by Dr. Halley, who has supposed the true source of springs to be formed by melted snow, rain water, and condensed vapours. He found that by evaporation, every 10 square inches of the ocean yielded one cubic inch of water; each square mile 6914 tons; and each square degree 33,000,000 tons. By this calculation, he supposed the Mediterranean alone would evaporate on a summer's day, 5280 million tons. But the manner in which this water is carried to the cavities of mountains remains to be explained.

In tops of mountains, cavities are naturally formed as it were for its reception: these mountain tops in many instances reaching to the clouds, attract the vapours of the atmosphere which there fall in a more condensed state, and by their gravity or weight, easily pass through beds of sand and light earth, until they are stopped in their

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descent by rocks or beds of clay. Restricted by these impediments, they naturally collect and form a basin or cavern, and, in trying to escape, work a passage through the side of the mountain, commonly known as wells.

Springs are divided into two classes; those which flow perpetually, without any seeming increase or diminution, called perennial springs; and those that run for a time only, or at certain seasons, called periodical springs. The latter are thought to be produced by slight overflowings of water, from the natural cisterns in the interior of the mountains, which, when filled, throw off the superabundance. It may also be remarked, that some springs are called intermitting, from flowing and stopping alternately.

Exercises.

Have the causes of springs been easily determined? State the causes advanced? Which the most probable? What the objections to the two first? Who advanced the most probable cause? What calculations have defended his opinions? How is the water conveyed to the mountains? By what means does the water escape from the mountains? How are springs divided? What a perennial spring? What a periodical? How is it supposed to be formed? What an intermitting spring?

CHAPTER XXVI.

Peculiarities of Springs.

The springs of Iceland are very remarkable, some of which flow only by sudden gushes, probably owing to subterraneous vapours: others ebb and flow at regular intervals. In Languedoc, the spring of Fouchanche flows daily for seven hours, when it rests for about five more. The noise of the springs of Bullerbon, in Westphalia, is heard at a great distance. The springs of Colmars in Provence, stop every seven minutes: it was changed into a perennial fountain by the earthquake that destroyed Lisbon in 1755: it began however in 1763 to

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stop again as before. The fountain of the Sun in ancient time, was remarkable for warmth at the rising of the sun: as the day advanced, the warmth diminished; and at noon it was found to be extremely cold: again at the setting of the sun it became warm as at the rising, and continued to become warmer until midnight, when it became exceedingly hot; but, as the morning advanced, it became again proportionably cold.

Cashmere is said to have possessed a spring which increased and decreased three times a day.

Of medicinal springs, reports almost lead to fable; yet it would be going too far to doubt their absolute existence. In Mount Siracto (as some writers mention,) is a spring whose waters boil at the rising of the sun; and in Connecticut is a fountain whose waters will evaporate, no matter how closely corked. In Greenland, springs and fountains rise and fall with the motions of the tides. In the rocks of Giggleswich, in Yorkshire, a well ebbs and flows several times in the course of an hour; but in hot weather, it ceases to do so. In Lancashire, near Wigan, a well possessed the singular property of burning; but, on the removal of a bed of coals from beneath its surface, this property ceased. It is of consequence to know that the purest springs have their sources at a considerable altitude. The commonest springs possess more or less of mineral and earthy matters, especially lime and saline matter.

The phenomenon of boiling springs is very remarkable; they are supposed to be regulated by the internal heat of the earth, and, consequently, by the position of the place they occupy; but to these suppositions are many modifications. The hot springs of Trinchera, about 9 miles from Valencia, are found to boil eggs in four minutes; while, at 40 feet distant, there are other springs perfectly cold: but springs of Japan are found to be many degrees hotter. Boiling springs are very numerous, but the cause of their great heat has not been satisfactorily shown. It is also remarkable, that rocks have been formed by the deposits of these springs: an example of such is found in

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Tuscany, formed by the hot springs of San Philippo. The ancient Temples, Streets, and Squares of Rome have been partly built from the carcerated deposits of such springs.

It is worthy of admiration, that springs never freeze like common lakes and rivers: the cause, however, is obvious; in frosty weather, the heat concentrated in the earth; throws a heat into the water, while passing through its pores to the cavities and sources of springs, and thus prevents successful congelation.

Exercises.

Describe the pecularities of the springs of Iceland? What the probable cause? Describe the springs of Fouchanche? That of Bullerbon? The spring of Colmars? What subsequently happened? Describe the fountain of the sun? That of Cashmere? The probable opinion of medicinal springs? Describe the spring of Mount Siracto? The fountains and springs of Connecticut? The springs of Greenland? The well of Giggleswich? That of Wigan and the subsequent effect? How are the purest springs naturally distinguished? Describe some boiling springs? Has the cause of their heat been satisfactorily shewn? Describe the deposits left by these springs? What is said of the ancient temples, streets, and squares of Rome? Do springs ever freeze? Why not?

CHAPTER XXVII.

The Atmosphere.

The Atmosphere is an invisible and highly elastic fluid, which surrounds the whole earth to an elevation of about 45 miles above the highest mountains. The atmospheric air consists of a mixture of oxygen and nitrogen gases; generally estimated at 21 parts of oxygen to 79 of nitrogen; it also contains a small proportion of carbonic acid, and possesses the property of retaining water in a suspended state of vapour. From this it appears to be a body possessing weight, differing according to its temperature. At the temperature of 60 degrees, 100 cubic

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inches of air weigh 30½ grains troy: and a perpendicular column of the whole atmosphere of one inch square, weighs about 14½ lbs., which is found to be balanced by a column of mercury, 30 inches high, and of the same shape and thickness. On this principle the barometer has been constructed. The atmosphere it must be remembered, is far from being of a uniform density throughout its mass. At the level of the sea it is densest, a gradual diminution taking place as we ascend above the level of the sea.

The rate of diminution is such, that at an elevation of three miles above the surface of the sea, one half of the entire body of air is supposed to be gone through, the remainder occupying an amount of space of upwards of 40 miles in width. This ratio has been found by experiment on elevated ground: the atmosphere exerting less pressure in proportion to its elevation, on any substance on which it may rest.

The extreme height of the atmosphere is not discernible from our position: casting the eye upwards, we perceive only an expanded vault, familiarly known as the sky or heavens. The blueish appearance which we behold, is formed by the action of the rays of light upon the thin fluid of the upper atmosphere; the brightness depending on the absence of clouds, or other watery vapours. In proportion as we ascend, this blueish tint disappears from the rarity of the air, and could a height be attained above the atmosphere, the sky would appear dark, or of a blackish hue.

Although a certain proportion of water, or of aqueous vapours, is always present in the atmosphere, yet it is subject to great variations, depending on the density of the air. If water be exposed to the air, it gradually disappears, entering the atmosphere by the process of evaporation. It may be well to know, that warm air is capable of taking up, and holding in suspension in the state of invisible vapour, more water than cold air; which accounts for the rapid disappearance of lakes and ponds in warm weather.

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Exercises.

Describe the atmosphere? To what extent does it surround the earth? What constitutes the air? What are its qualities? What its proportional pressure, and what its proportional weight with regard to mercury? Is its density uniform throughout? Where is it densest? Describe its rarification in space? Give the cause for the apparent blueness of the heavens? Beyond the limits of the atmosphere what would be the appearance? Why do lakes and ponds diminish in warm weather.

CHAPTER XXVIII.

Dew.

When the air becomes heated during the day, and raised to a high temperature, its capacity for holding water is increased; and by the means of evaporation becomes charged with moisture. If then it holds in suspension, vapour in proportion to its capacity, it is evident that when its temperature decreases towards night, it will contain an excess of moisture more than it has a capacity for holding, which will, as the temperature of the air gradually diminishes, be deposited in the form of dew. The cool clear evening which succeeds a sultry day, is found to add greatly to the deposition of dew.

The dews in this country are most abundant in spring and autumn, as at these seasons the difference of temperature between day and night is greatest.

It is natural to suppose that, in calm weather, the moisture evaporated during the day from a given tract of land might be deposited on the same at night; but a gentle breeze has a great influence on removing this moisture to a considerable distance, and as the wind may pass over similar or perhaps an arid sandy tract, there may in the former case be deposited similar dew, and in the latter, little or none at all; but if on the other hand the wind passes over water,

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or a swampy surface, the deposition of dew may be increased.

In this country, we find dew less copious during the easterly than the westerly winds, as the easterly pass over the continent of Europe, whilst the westerly cross the wide Atlantic, thereby becoming more saturated. In hot countries this phenomenon is more obvious: in Egypt, the wind coming from the Mediterranean, deposits dew in abundance, while during the prevalence of the south wind, which traverses extensive tracts of sandy deserts, no dew is deposited.

It is remarkable that in cloudy nights, little or no dew is deposited: this is caused by the earth's surface having much the same temperature as the surrounding air; it being essential for the copious deposition of dew, that the ground on which it falls should possess a temperature considerably below that of the atmosphere. It is of consequence to know, that for the rapid formation of dew, the earth should be ten or fifteen degrees cooler than the surrounding air.

It must be remarked, that all substances are not equally covered with dew: in clear weather it has been found that a thermometer laid upon grass, marked 16½ degrees lower than one laid upon a gravel walk beside it; from this we may infer, that the grass in a dewy night would receive a large portion, while the gravel walk would receive little or none: which accounts for rocks, roads, sands, etc., receiving little or no dew, while grass and vegetables in the same locality are covered with it.

Exercises.

Describe the probable cause of the deposition of dew? What adds to the increase of it? When are our dews most frequent, and why? Describe the cause of the apparent difference in the increase of dew? What with regard to hot countries? Give an example? In the case of cloudy nights, what is the cause of its disappearance? What is particularly essential for the deposition of dew? Are all substances alike covered with it? Why not?

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CHAPTER XXIX.

Mists, Fogs, and Rain.

Mists, or fogs, may be considered as dew, which, owing to incidental causes, remain suspended above the land or water, instead of descending in the form of dew. Mists, in contradistinction to dew, are liable to be formed when the lower stratum of air is cooler than the surface of the ground or water over which they rest. They are consequently more frequent in Autumn and at the approach of cold weather, than in the spring. They are peculiar to the ocean especially in cold climates, owing to the temperature of the sea being often higher than that of the atmosphere.

A remarkable stationary fog occurs off the coast of Newfoundland, formed by the chilly atmosphere of that locality, and the warmth of the adjacent water of the ocean; the temperature of which is raised and continued by the well known current, called the gulf stream.

Clouds, as in the case of mists, are formed by the condensation of vapour, which, forming water, become visible first in very minute particles, then becoming heavier form drops, which fall to the earth in rain. When these drops are formed at a considerable height in the atmosphere, or in very cold strata of air, they come down in the form of hail and snow.

Hail is formed suddenly, while snow is formed by a gradual congelation, which accounts for the appearance of hail in summer and in hot countries where snow is unknown. Although the quantity of rain that falls in different parts of the earth is variable, it appears that the mean annual quantity is greatest in tropical climates, and diminishes as we recede from the Equator; it must however be remembered, that the quantity of rain is not entirely dependent on the latitude, but it is influenced by locality, by elevated lands and trees; which attract moisture, and accounts for raised and woody districts being

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much more subject to rain than plains or barren countries.

The prevailing winds, especially those passing over the ocean, bring with them a considerable portion of vapour, which, from local circumstances, becomes condensed and falls in the form of rain: as an example of this we may mention Great Britain; the winds passing over the Atlantic ocean, deposit more rain in the eastern than in the western district. In the instance of trees and elevated land, we may mention that on the western side of the Patagonian Andes: a narrow slip of land, covered with rich vegetation, lying near the Pacific, is visited by almost incessant rain, owing to the westerly winds sweeping across the Pacific ocean. On the other hand, Peru being completely insulated by mountains, which give rise to the most magnificent river system, is destitute of rain: indeed, in some parts of the earth, extensive tracts exist where rain may be said never to fall: such may be found in some parts of Egypt and Arabia.

Other districts again are visited with periodical rains; those lying within 10 degrees of the Equator having two rainy and two dry seasons, but beyond these limits, intertropical regions have but one of each; the rainy season lasting from four to six months, and occurs with great regularity.

It is necessary to mention, that more rain falls in tropical than in temperate and cold regions, although the number of rainy days is much less.

Exercises.

Describe mists and fogs? Why are they more frequent in autumn than in spring? Why are they so peculiar to the ocean? Describe the fog off the coast of Newfoundland? Describe the formation of clouds? That of hail and snow? Account for the presence of hail in summer? In what part of the earth does most rain fall? What chiefly adds to the deposition of rain? Describe the effects of winds on rain? Give examples of this? Is rain universal? Describe periodical rains? Where do they occur? Where are rainy days most numerous?

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CHAPTER XXX.

Winds.

Winds are caused by partial changes in the density of the atmosphere, arising chiefly from the inequality of heat distributed over the face of the globe, and are exceedingly changeable in Great Britain. In some parts of the globe, they blow with remarkable regularity, while in other parts they are subject to periodical changes.

Winds have been divided into three classes, viz: permanent, periodical, and variable. The most remarkable of these classes are the permanent, or trade winds. The whole land lying within the tropics, both in the Atlantic and Pacific oceans, is visited by these winds, generally blowing from the east. The cause of these winds has been thus explained; the heat between the tropics being greater than in any other part of the earth's surface, the air in those regions becomes more rarified and consequently less dense; by which it rises from the surface, when its vacant place is immediately filled by the colder and heavier air which enters the tropics on both sides from the poles, and participates in the motion of rotation peculiar to that part of the earth's surface.

This motion we know to be swifter than the rotary motion at and about the poles, and therefore currents of air coming from the northern and southern regions towards the Equator, not having such a velocity of rotation, must pause or stand back, in a direction opposite to that in which the earth is revolving on its axis; *i. e.*, from east to west. Were it not for the earth's rotary motion, these currents would be simply northerly and southerly winds; but in consequence of the rotary motion, they acquire a relative direction from the east, whereby they assume the name in both hemispheres of permanent northerly and southerly winds.

If the Equatorial regions of the earth were covered with water, these winds would constantly and regularly blow in the direction just mentioned, but the interposition of large tracts of land and snowy mountains hinders their

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course, and subjects them to many irregularities, and hence it appears they are more constant and uniform in the Pacific than in the Atlantic ocean, and in the latter than the Indian ocean.

These irregularities in the trade winds give rise to the periodical winds, the most important of which are the *monsoons*. In the southern part of the Indian ocean, the trade winds blow with their accustomed regularity, but in the seas between Sumatra and Africa, which forms its northern part, the course of the trade winds is reversed for half the year, during which time there is a constant wind from the south west: this change appears to be brought about by a great rarefaction of the atmosphere in the large regions of southern Asia, as, at the time of its taking place, the sun is north of the Equator. These winds are distinguished as the south-west and north-eastern monsoons; the south west, from passing over the ocean, renders, by its moisture, the vegetation of India beautiful in the highest degree.

Land and sea breezes are caused by the varying and unequal temperature of the land: the surface of the land being more heated during the day-time than that of the sea. The land air becoming more rarefied, rises; and the cooler air being heavier, rushes in to fill its place; the sea breeze commences at about 10 A.M., and continues throughout the day until six in the afternoon, when it gradually dies away. During the night, the reverse of this takes place; for the air above the land suddenly cooling, while that above the sea preserves a more equable temperature, the current of air blowing from the land towards the sea.

In temperate regions the winds are less regular than in tropical, the causes which produce them acting with less force, by which the disturbing causes become more domitable.

The most prevalent winds of Great Britain are from the south-west: the Sirocco of Italy and Sicily, the Solano of Spain, the Simoon of Arabia, and the Harmattan of western Africa, are all caused by the heated surface of

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the sandy districts of Arabia and Africa. The two former however differ from the latter, as possessing more humidity, acquired by passing over the Mediterranean.

Exercises.

Explain the cause of winds? Are they regular in all parts? Into how many classes are they divided? Which of these classes is the most remarkable? Describe the trade winds? What causes irregularity in the trade winds? What do these irregularities give rise to? Describe the monsoons? What effect have these winds on the vegetation of India? Describe land and sea breezes with their probable cause? Where are winds less regular, and why? From what point are the most prevalent winds of Great Britain? Account for the Sirocco? The Solano? The Simoon and the Harmattan? In what respect do the two former differ from the two latter?

CHAPTER XXXI.

Reflection, Twilight, Refraction.

The appearance of day before the sun's rising has been accounted for in the following manner; when the sun in the morning is 18 degrees below our horizon, his rays pass directly to the upper regions of the atmosphere: when they enter the atmosphere, they become reflected through it to the earth. By this we are enabled to behold the dawning and increasing brightness of the day, till the sun appears above the horizon. Should the atmosphere lose its reflective powers, the sky would in like manner lose its brilliancy, and the stars would appear quite visible at noon day.

The appearance of *twilight* in the evening is accounted for in the same manner; the sun continuing to give us a decreasing light until he has sunk 18 degrees below our horizon, when the blackness of night succeeds. It is to be remarked however, that the duration of this evening or faint light, is not the same in all parts of the earth.

At the Equator, in consequence of the sun's descend-

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ing below the horizon in the evening, and rising in the morning in a more direct course, and consequently with greater swiftness, the evening twilight is there at all times of short duration. At the polar regions, on the contrary, the sun in Winter is scarcely ever more than 18 degrees below the horizon, from which it appears that at this season, twilight in these regions is hardly ever unknown: thus we find that though the inhabitants of these dreary regions are denied the presence of the sun during the greater part of the year, yet they are not left entirely in utter darkness. The light of the moon (which is peculiar to these regions), combined with such a long twilight as they enjoy, makes up in a great degree for the absence of the sun's rays in winter.

The rays of the sun thus striking on the upper regions of the atmosphere, arrive at the earth, or the eye of the observer, in a curved or bent line. In this position, they are said to be *Refracted.*

The rays of light thus conveyed to the eye of the beholder, give the idea of the heavenly bodies appearing higher in the heavens than they really are (the zenith excepted).

By *Refraction*, at some times of the year the sun appears five minutes sooner in the morning, and later in the evening, than he ought to do: in fact, when the sun is in reality below our horizon, we are, by refraction, apparently enabled to behold his disc again.

A familiar example of refraction may be shown by dipping a walking stick in water; if placed perpendicularly, there will be no refraction, it being in the direction of the zenith; but if placed obliquely, or in a slanting direction, the portion in the water will appear bent, or broken from the portion above the water.

Exercises.

Account for the appearance of day before sun rising? From how many degrees below the horizon do the sun's rays present themselves to the upper regions of the atmosphere? By what means do they arrive at the earth? Without reflection, how would the heavens appear? Account for *twilight*? Is the duration of twi-

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light equal throughout the globe? Where is it greatest? Where least? Why is it peculiarly useful in the regions of the poles? Account for *refraction*? State some consequences of refraction? Should refraction cease, what would follow? Give a familiar example of refraction?

CHAPTER XXXII.

Geographical Distribution of Plants.

Notwithstanding the various changes of the atmosphere, the diversities of climate, the qualities and composition of the soil, and the situation of countries as regards mountain or plain, exposure and shelter, there are still found vegetable forms natural to every climate. It is a matter not easily decided, how plants, peculiar to one country, have been found in a less degree in another. Some suppose that ripened seeds have been scattered by winds or water currents, and have so become amalgamated with vegetables of other parts.

Plants, transported by man from one country to the other, have been found, when planted in any particular part, to spread over the surface of their new soil by the agency, as is supposed, of winds and running streams. The parsley, turnip, and many others, have been brought to Britain in this way; as also the potato, the grape, and coffee plant, and many more have been more or less spread over the earth. Though plants may be removed from one country to another, still climate greatly alters their success: should the new climate not be congenial to their growth, they soon disappear and perish. It remains then only to say, that the native locality of plants is the principal field to foster their natural strength and beauty.

With regard to their primitive distribution over the surface of the globe, the different species will be found to occupy positions varying with the degrees of cold and heat. In order to distinguish more generally these localities of heat and cold, the surface of the earth has been [illegible]d into five zones; the Torrid occupying the regions

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in and about the Equator, from whose limits the Temperate diminish to the arctic circles. These zones are found to contain various descriptions of plants.

In the immediate vicinity of the Equator, for example, are found palms, and in the more temperate zones, oak and other magnificent trees. In the vicinity of the Frigid zones are found birches, pines, and other hard grown trees. More northerly are found heaths, lichens; and, finally, extreme cold precludes vegetation of every species and shape.

Now we are not to judge of the locality of plants as depending altogether on the division of zones; other matters tending to modify the temperature of the atmosphere. The continental climates differing widely from islands in the same latitude. Distance from the ocean and altitude above the level of the sea diminishing the temperature of climate, alter considerably the localization of plants.

It has been found that, at a certain height above the sea level, perpetual snow exists in all parts; and, in ascending to the summits of high mountains, the different temperatures of the five zones are experienced. A similar change is found to exist among plants.

Around the base of the Pyrenees or Alps, are found the natural plants of a temperate climate, as the oak and vine: a little higher up these disappear, and birches and pines are found as in the vicinity of the Frigid zones: going still higher, all trees disappear, and the scanty heath and willow remind the traveller of the polar regions.

Thus many plants found at an altitude on the mountains of southern Europe are a species of those of Greenland and other northern climates. The hills of Scotland contain about half the species of the plants of Spitzbergen.

The snow line at the Equator lies at an altitude of 16,000 feet above the sea level, but decreases in proportion between the Equator and poles. In central Europe, it is only 6000 feet above the sea level, and finally rests, on the level of the sea in latitude 70 or 80 degrees north. The snow line also varies, as the temperature of climates,

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depending on local circumstances, and is affected more by the summer than the whole year, being lower in maritime than continental countries.

Exercises.

Is vegetation universal? How is this accounted for? Does transposition affect all plants? Why not? Account for the primitive distribution of plants? What has been done to mark the limits of the different species? Describe the zones with their appropriate trees? Does this distribution in every case depend on the division of zones? Why not? In ascending the snow line from the base of the Alps, what takes place? What the cause of this? What the altitude of the snow line at the equator? Where has it no altitude? Is it lower in maritime than in continental countries?

CHAPTER XXXIII.

Distribution of Plants continued.

Moisture, soil, and aspect, have a great effect on the growth of plants: marshes foster rushes; and rains, grasses: while some plants grow best on sunny banks, others require the deep gloom of the forest. The ancients were unacquainted with thousands of plants now known in Great Britain.

By the researches of botanists, 50,000 species of vegetables have been enumerated. This vast number (with a few exceptions) have been classed and localized according to their different orders, within certain limits of each other: thus, trees and plants growing wild in one hemisphere, have no natural connection with those of the other in the same latitude. The plants of China and Japan are different to those of the East India islands; and those of Australia differ from both: even the island of St. Helena possesses plants quite different from those of the opposite shores of Africa.

It is remarked, however, that plants of one country when removed to another, often appear to flourish as at home: the potato, for example, appears to grow as well in Britain as in its native soil in South America.

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Beyond the Arctic circle there are scarcely any plants to be seen excepting heath of a rigid growth; and north of 60 degrees in North America, there are no trees to be found: but in Europe, trees are found much more northern. Sweden, Norway, and Russia, produce excellent fir and deal; and near the limits of perpetual snow are found the dwarf birch, and dwarf willow. The reindeer-moss, so well known for its medicinal qualities, is found beyond the birch and willow.

In approaching the Equator from the Arctic circles, may be found the common birch and Scotch fir: the cold alder is not met with south of 60 degrees. Still continuing south, the gooseberry and raspberry appear; and still more southerly, the ash, oak, and beech are found. The oak is found throughout Europe, and although found in latitude 63 of western Europe, yet it ceases to exist in latitude 57½ of eastern Europe; and proceeding still east through Asia, the oak is found to languish in the same latitude as London.

The cold of Pekin, in winter, (although in the same latitude as the south of France, where the orange grows in the open air,) is more severe than in Britain, and is only 2 degrees less in temperature than the cold at North Cape in Lapland.

The eastern continental shores therefore appear to be colder than the western in the same latitude, but this appears to be owing to the extent of surface passed over by the westerly winds, bringing the colder air of Siberia to the eastern countries: Lapland and Norway enjoy a more moderate climate than any other countries in the same latitude. At Torneo, in Lapland, the birch is said to be magnificent: the peculiarity of the climate of Lapland and Norway is perhaps owing to their situation between four seas.

In the Orkney islands, no tree is found but the hazel, and in the western parts of Asia, in the same latitude, the hazel is not seen.

The frost continues in Lapland for about 8 months, during which time the ground is covered with snow. In

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June the barley is sown, and in three months comes the harvest. Notwithstanding this inclement weather, flowers of great beauty have been found on the shores of the Baltic; and towards Stockholm, the sycamore, the dog rose, and the cowslip have been found.

Exercises.

In addition to atmospheric changes, what other causes tend to affect vegetation? Give examples of this? What the amount of the several species of plants at present known? State their classification? Give examples? That of St. Helena? Give examples of successful transposition? What the productions of the frigid zones? What the limitation of trees in North America? What Europe? Where the region of the dwarf birch and willow? The rein-deer moss? The limitation of the cold alder? That of the oak in eastern Europe? In Asia? Describe the climate of Pekin as contrasted with London? Why Lapland and Norway more temperate than their relative latitudes in other countries? Describe the seed time of Lapland? State the natural trees of the Orkney Islands and of Lapland?

CHAPTER XXXIV.

Distribution of Plants continued.

Russia abounds in forests; in the north are found various kinds of fir, and in the vicinity of the Ural mountains, the Siberian cedar: birch is also found in abundance, and is succeeded by the lime tree. Passing into Asiatic Russia, the oak, Scotch and spruce fir disappear, while the larch extends to the Arctic circle. Great Britain possesses the oak, beech, and elm, but each has its respective soil; the beech tree not being found farther north than south Lincolnshire. The ash, maple, and sycamore, are also found growing in Great Britain.

From the northern extremity of Jutland to latitude 52 degrees, with a large portion of western Germany is a large district of heath, more or less barren: to the south

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of this barren tract is found a district of great fertility, and remarkable for its flat surface: it comprises the Netherlands, parts of Germany and France, with southern Russia.

The growth of corn is found to agree with that of trees, as regards the eastern and western parts of the continent. In Norway, corn ripens at 70 degrees of latitude, and in Russia, at scarcely 60 degrees; and at Kampschatka, it descends as low as the latitude of London. On the eastern shores of America, the growth of corn does not occur at a higher latitude than 52 degrees north. Within the tropics, wheat, oats, and barley are not cultivated, except at a considerable height above the level of the sea. The apple does not ripen beyond latitude 62 degrees in west Europe; and not in eastern Europe beyond latitude 57 degrees.

In the promontory forming the shire of Cornwall, neither the vine, the apricot, nor the greengage plum produce ripe fruit, yet the mildness of the winter fosters the myrtle and other greenhouse plants grow luxuriantly in the open air, and the ponds are seldom sufficiently frozen to bear the weight of a man.

The vine succeeds in those climates only, whose mean temperature is between 50 and 60 degrees (Fahrenheit). In the eastern hemisphere, this is found quite correct as far north as latitude 50; but in the western, to 40 only. In both hemispheres its profitable culture ceases within 30 degrees of the Equator, unless in an elevated position.

Rice is first met with in the north of Italy, to the west of Milan. To the east of Milan, the plain is covered with rich pastures, which are regularly flooded; and from whence comes the noted Parmesan cheese.

The northern boundary of the olive may be traced from the Atlantic through the chain of mountains stretching to the Black sea. The olive is found chiefly in Spain and Portugal; in France, south of the Cevennes; over Italy, south of the Appenines; and in Turkey, south of the Balkan. The vegetables to the south of these mountains are exceedingly beautiful, and plants of the grass

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tribe may be seen rising to the height of 20 feet; and here also the orange, lemon, pomegranate, and American aloe, bloom in the open air. The olive is not found south of the great Desert in Africa, but is found 10 degrees nearer the north in Europe than America, so great is the cold of the American winter. In the vicinity of Quito, at an elevation of 8000 feet, the olive attains the magnitude of an oak, yet produces no fruit.

Exercises.

Is Russia a thickly wooded country? Describe the trees of Russia? What the chief trees of Asiatic Russia? What of Great Britain? The limitation of the beech in Britain? Describe the soil and productions of North Jutland? North Western Germany? The general surface of the Netherlands? Central and southern Germany? Southern Russia? Contrast the growth of corn with that of trees in the same latitudes? The limitation of corn in Norway? Russia and Kampschatka? The growth of oats, wheat, and barley, within the tropics? The limitation of the apple? Describe the temperature of Cornwall? That of the vine? The limitation of the vine in both hemispheres? Where is the cultivation of rice first found? From whence comes the Parmesan cheese? Trace the northern boundary of the olive? In what countries is it chiefly found? Describe vegetation south of the Appenines? The Balkan mountains? The limitation of the olive in Africa? Contrast its growth in Europe with that of America? What is the cause of this? Describe the oak in Quito?

CHAPTER XXXV.

Distribution of Plants continued.

The orange and lemon trees are more tender than the olive, and are found in great plenty about Geneva and Nice, but are not met with again in Italy nearer than Naples. The cork tree is found in the south of Europe, but the laurel appears to belong to Turkey. The fig and pomegranate have about the same limits as the olive. Travelling from southern Russia eastward towards Asia, touching the northern shores of the Black sea, the soil is

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found sandy, intermixed with sea shells, and abounding in salt lakes; but this surface is perhaps better known as the steppes of Russia. To the south of the plain, lying between the Black sea and the north of the Caspian, is Mount Caucacus, remarkable for its natural beauties.

In the valleys of Curdistan, on the southern side of the Caucacus, are found the lemon, pear, and pomegranate trees; in fact, every species of foreign fruit found in our gardens, grow wild in this region.

The melon and cucumber, originally from Egypt, (as spoken of by the Israelites in the Desert,) are also found here.

Balm, myrrh, and frankincense, are natives of Arabia Felix. The balm of Gilead was first carried to the Holy Land by the Queen of Sheba, as a present to King Solomon, and was afterwards planted in Gilead.

On the eastern shores of the Red Sea we find the coffee tree, about 20 feet in height.

In the valley of the Nile is found the Papyrus, a kind of reed anciently employed by the Egyptians for making paper: hence the word paper.

Barley, wheat, and rice are also produced in Egypt.

The weeping willow is found wild in all parts of the Temperate zone between Persia and Japan.

The Indian oak is remarkable for durability, far exceeding that of Britain.

The orange tree appears to have been originally from China, but the tea tree is exclusively from China and Japan.

Now, turning to the continent of America, it is worthy of remark that, in Canada, under the same parallels of latitude as France, the cold of the winter is destructive to every species of tree except those growing in northern climates; yet the summer heat is sufficient to bring to perfection many southern plants protected by the winter snow. The sugar maple, and straight Weymouth pine, are found in Canada.

The vegetable productions of the Temperate regions of North America are alike remarkable for variety and

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beauty, contrasted with those of the same latitude in the Old world. From the Alleghany mountains comes the acacia, remarkable for elegance of foliage.

The form of the American continent, and the nature of the mountains, admit of a greater variety of climates than the Old world, which is the cause of northern pines being found in the high lands of Mexico.

Tobacco, rice, and cotton plantations are extensive in the southern parts of the United States. Mahogany is also a native of the New world, but the best quality comes from St. Domingo, one of the West Indian islands.

The dahlia is a native of Mexico; and from Peru we have the potato.

Exercises.

What the limits of the orange and lemon in southern Europe? The cork, laurel, fig, and pomegranate? Describe the soil in the vicinity of the Black Sea? Where is mount Caucacus? Describe the various fruits found here? The melon and cucumber? Balm, myrrh, and frankincense? The balm of Gilead? The eastern shores of the Red Sea? The valley of the Nile? The limits of the weeping willow in Asia? The orange tree originally? The tea tree? Contrast the climate of North America with that of France in the same latitude? The sugar maple and Weymouth pine? What are the vegetables of North America remarkable for? From whence comes the acacia? What natural features on the continent of America are favourable to a variety of plants? Where are plantations of tobacco, rice, and cotton? From whence comes mahogany, the dahlia, and potato?

CHAPTER XXXVI.

Distribution of Plants concluded.

On entering the Torrid zone, picturesque scenery and glowing regions everywhere attract the notice of the traveller. The forests of South America, between the Orinocoo and Amazons, stretch for several hundred miles. In these regions plants attain the magnitude of trees, which

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in Europe never exceed that of herbs: the bamboo in a few months attains the height of 60 feet.

In such regions it is natural to suppose that the increase of heat from the sun's rays must be remarkably great; but, on comparing the mean temperature of various places within the tropics, the supposition will be found only ideal. The mean temperature of the Equatorial regions does not exceed 82 degrees—a degree of heat quite common in our country. In South America, in latitude 10 degrees, the temperature amounts to the same: in the island of Cuba, in latitude 23, it is 78 degrees; and at Madras, in latitude 13, it is 81 degrees. From this, it appears that the tropical climates are more equable than over heating. The sun being twice in the year vertical to every place within the tropics, there are of course two summers and two winters experienced in these places during the year; but, the temperature differing so little, these seasons are hardly perceptible, but are more particularly marked by the rainy seasons.

During the time answering to our summer, the greater part of the tropical regions are deluged with almost continual rain, while fine weather is experienced during the remainder of the year.

The sugar cane, so plentifully found in the West Indian islands, is supposed to be a native of China.

The pine apple, growing wild in Africa, is supposed to have originally come from Spain.

The India rubber tree is also a native of Brazil.

In the East Indies are found the greater number of spicery plants—as pepper, ginger, cloves, cinnamon, nutmegs, gums, and resins.

From the base of the Andes—the region of the palms; to their summit, the region of perpetual snow—may be found the various gradations of the vegetable zones: the bananna, maize, and cocoa, are fostered at their base; but, at an elevation of 3200 feet, these are rarely to be found.

Wheat commences at an elevation of 3000 feet, but not completely established lower than 1500 feet above this limit.

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Barley succeeds best from 4800 to 6000 feet, yielding thirty fold.

The cocoa region abounds from 4920 to 5106 feet.

The various grains of Europe succeed best at an elevation of from 6000 to 9000 feet; the extensive plateaus of the cordillera of the Andes adding greatly to their success. Frost and hail often destroy the crops at an elevation of 9000 or 10,000 feet: the potato is produced at an elevation of above 10,000 feet, but ceases at 12,000 feet: barley ceases at 10,200 feet; and at 11,046 feet high, all gardening ceases, but the place of vegetation is succeeded by vast flocks of sheep, lamas, and oxen, whose wanderings often terminate in perpetual snow.

Exercises.

What the characteristic scenery of the Torrid zone? Describe the forests of South America, between the rivers Orinocoo and the Amazon? The Bamboo tree? What the mean temperature at the equator in Cuba? At Madras? What the conclusion drawn? Describe the seasons of the Torrid zone? The sugar cane? The pine apple? The Indian rubber? The spicery plants? Describe the gradation of vegetation on the Andes?

CHAPTER XXXVII.

Geographical Distribution of Animals.

Numerous as are the vegetable productions of the earth, its animated occupants are much more so. The earth, the air, the waters, and all nature, appears to be full of living beings. There are, generally, speaking four great divisions of animals, viz., the *vertebrated, molluscous, articulated,* and *radiated.*

The first division includes all animals having a back bone, and is divided into four classes, viz: mammalia, birds, reptiles, and fish: the class mammalia is again divided into nine orders; the first, or *bimana,* includes man.

The second, or *quadrumana,* comprises all animals

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whose hinder parts possess hands instead of feet—as apes, baboons, monkeys, etc.: this kind chiefly inhabit the forests of tropical regions.

The third, or *carnivora*, comprises all animals subsisting, in whole or in part, on animal food—as lions, tigers dogs, wolves, foxes, weasels, bears, badgers, seals, etc. The savage bear inhabits both the Old and New world. The polar bear is known in all the northern regions of the globe, and has the most northern range of all quadrupeds: the weasel kind, the ermine, and sable, chiefly inhabit the northern districts of both continents. Foxes are very generally known throughout the globe. The dog, the faithful companion of man in every region and clime, appears to be a native of the north Temperate zone. The feline or cat tribe—as the lion, tiger, leopard, hyæna, panther, etc., are very generally spread over the Old continent. The lion and tiger range to a considerable distance on both sides of the Equator, but they become proportionably smaller as they recede from that line. The royal lion is confined to Africa. The Asiatic lion is of a smaller species, and almost without a mane.

The tiger is peculiar to Asia. The leopard and panther are very numerous in Africa, where also the hyæna is found in great abundance: they also extend into Asia, where many small animals of the feline kind are found. It is remarkable that none of these inhabit the New world; notwithstanding America has its own appropriate feline kind. Wild cats of various species are found in almost every region of the globe. Amphibious animals inhabit the cold regions; the Greenland seals, for example, extend along the Arctic coasts of both continents: the southern ocean possesses the fur seal, the ursine, and the elephant seals.

The fourth order, or *rodentia*, comprises the beaver, hare, squirrel, mouse, rat, porcupine, etc. North America possesses the greatest number of different species of this order, which generally differ from those of the Old continent. The rat is found in almost every land that has been explored. The beaver, now extinct in Britain,

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is found on the banks of the Rhone and Rhine, and some other European rivers. The common porcupine chiefly inhabits the warm regions of Asia, and hares of various species are common in both continents.

The fifth order, or *edentata*, includes the sloth, ant-eater, etc., which chiefly inhabit South America; but the Cape ant-eater is a native of Africa.

The sixth order, or *marsupiata*, includes kangaroos, opossums, etc., which generally inhabit Australia. The opossums are carnivorous, but kangaroos live entirely on vegetable food.

The seventh order, or *pachydermata*, includes, among others, animals of the greatest magnitude, which chiefly inhabit warm or temperate regions, such as the elephant, rhinoceros, hippopotamus, horse, zebra, dog, etc. The hippopotamus is peculiar to the rivers of Africa. This class is confined to the Old continent. The wild boar and horse, which inhabit the New world, are considered of European origin.

The eighth order, or *ruminantia*, includes all animals which chew the cud. Two species of this order are known in both continents, and are the two species which have the most northerly range, as the elk and rein-deer. The cow kind is very generally known, but South America and Australia possess no native species. The Cape buffalo, remarkable for its spreading horns, is a native of southern Africa, and the musk ox originally came from North America.

The ninth order, or *cetacea*, comprises the whale, dolphin, dugoug, porpoise, etc. They all traverse the depths of the ocean, and occasionally frequent the shores. The southern Ocean. it may be remarked, possesses an appropriate species of this order.

Exercises.

Name the four great divisions of the animal creation? Name the four classes into which the vertebrated has been divided? Describe the second order of the mammalia class? Where do these animals chiefly inhabit? Describe the third order? The

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locality of the polar bear? That of the feline kind? The abode of the royal lion? The tiger and leopard? The amphibious animals? Describe the animals of the fourth order? In which hemisphere is this kind more general? The rat? The beaver? The common porcupine? Describe the fifth order? The sixth order? The locality of this kind? Name some animals of the seventh order? For what is this order remarkable? Name their various localities? Describe the eighth order? The cow, buffalo, and musk deer? Describe the ninth order? Do the species of the northern ocean agree in every respect with those of the southern? Does the mammalia division of the Old continent agree in species with that of the New?

CHAPTER XXXVIII.

Geographical Distribution of Animals concluded.

As it would be impossible, in the limited space allowed to the subjects of a few lessons to give even a brief account of the animal creation, this must of necessity embrace no more than a short description of the three remaining classes of the vertebrated kind, and concluding with a general view of the molluscuous, articulated, and radiated divisions.

The second class of the vertebrated division includes birds of all kinds, which are again divided into orders depending on their external appearance and apparent habits, viz., *Incessores*, or perching birds—as crows, starlings, finches, etc.: *Raptores*, or birds of prey—as the falcon, vulture, etc.: *Scansores*, or climbing birds—as wood-peckers, cuckoos, parrots, etc.: *Rasores*, or scrapers—as the pheasant and fowl tribes: *Cursores*, or running birds—as the ostrich: *Grallatores*, or waders—as the snipe, crane, stork, etc.: and the *Natatores*, or swimming birds—as the duck, swan, gull, pelican, etc.

The class reptiles are divided into two orders—reptilia, and amphibia: those of the reptilia include tortoises, turtles, crocodiles, lizards, and serpents. The amphibia includes toads, frogs, etc.

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It is necessary to remark that the largest and most venomous reptiles inhabit tropical regions, and that a gradual diminution in size, number, and venom occurs towards colder latitudes. The equatorial regions of America swarm with the serpent tribe, but they completely disappear on the Andes, at an elevation of 6000 feet.

With regard to the distribution of fish, we must consider that two-thirds of the surface of the globe is occupied with water, the natural element of this class: they must therefore be the most numerous of vertebrated animals, which is rendered more so by their great fertility.

The class is divided into the *Osseous*, and *Cartilaginous* fishes.

The *Osseous*, is distinguished by a hard bone skeleton, and is divided into six orders known by the structure of the fin rays. The *Cartilaginous* fishes possess a frame quite flexible, and are distinguished by the appearance of the gills. Some fishes are known to feed on the surface, and consequently have a wider range than those that feed on the ground: the former, probably, wander from one side of the Atlantic to the other. Some again are known to migrate from great depths to the shallow shores, in order that they may deposit their spawn among the adjacent marine plants.

The second or *molluscous* division of the animal kingdom comprises animals without bones, which are chiefly enclosed in hard shells—as snails, whelks, oysters, etc.

The third or *articulated* division, comprises animals having a jointed or articulated structure—as first, leeches, earth, worms, etc.; second, lobsters, crabs, locusts, etc.; third, spiders; and fourth, insects of all kinds—as wasps, bees, flies, etc.

The fourth great division, or radiated, comprises animals whose structure resembles, as it were, rays issuing from a common centre, from which appearance they are called radiated. The star fish may be remarked as forming a good example of this division; it usually consists of five divisions; coral forming animals, animal plants, jelly fish, animalcules, and sponges.

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Exercises.

What kind of animals embrace the second class of the vertebrated division? Describe the various orders? Name the divisions of the third class or reptiles? Describe the various species of these two divisions? What parts of the globe are generally occupied by reptiles of the largest size and where are they most numerous? At what height on the Andes does the serpent tribe disappear? What is the probable cause of this? Why may the fish class be the most numerous? Describe the two orders of fishes? Account for the migrations of some? Describe the second great division of the animal kingdom with some animals belonging to it? Describe the third great division and its four orders? Describe the fourth or radiated order with some animals belonging to its five orders?

CHAPTER XXXIX.

Geographical Distribution of Man.

The peculiarities, form, colour, and structure of the various tribes of men, induced many naturalists to classify the whole human family (though but a single species) into several races, viz., the *Caucasian, Mongolian Ethiopic, American,* and *Malay.*

The Caucasian race is widely spread over the face of the globe, and is distinguished for natural beauty and intellectual eminence. The families of the Caucasian race are the Caucasians proper, the Germanic branch, the Celtic, the Arabian, the Libyan, the Nilotic or Egyptian, and the Hindostanic. The Caucasians-Proper, so called, from the supposition that they originated from the valleys of the Caucasus, between the Black and Caspian seas, not far from the supposed birth place of mankind. The Circassians and Georgians present perfect specimens of this tribe. At this day, a great part of the Persians, but particularly the upper classes are of Circassian descent; and the Roman Nation was founded by a small body of pure Circassians.

The German branch of the Caucasian variety first

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emanated from the original seats of the race, and filled Germany, Sweden, and Norway, and the greater part of Russia and Poland.

The Celtic branch of the Caucasians settled at a very early period in Western Europe. The whole of Italy, Spain, France, and Britain, was peopled by them. Notwithstanding the successive incursions of the Greeks, Romans, and Germans, who did much to obliterate this branch, yet the race, name, and language remain unaltered to this day on the outskirts of the ancient Celtic dominions. As examples of this, we may mention Scotland, Wales, and Ireland; also in Brittany, Gascony, and Biscay, we may distinctly observe traces of this people.

Another branch of the Caucasian variety is the Coptic, or Egyptian, remarkable for early distinctions, and the tribe who founded the civilization of the world. This branch consisted of the Egyptians, Nubians, and Abyssinians: they are of a slender form, and of a swarthy brown complexion. It is to the ingenuity of the Caucasian tribes that we are indebted for our free political institutions, the discovery of printing, the compass, the steam engine, gunpowder, and time measurers; but it is to the Germanic family we must give the greatest merit. In fine, we may include in the Caucasian race, the Jews, Phœnicians and Abyssinians, as well as the Medes, Persians, Affghans, and the higher castes of India, the Greeks also, and all the civilized European nations.

Exercises.

What first led to the division of mankind into different races? Name the divisions? Name the divisions of the Caucasian tribe? Describe the Caucasians proper? The German branch? The Celtic branch? The Egyptian branch? By what branch was the Roman nation founded? For what discoveries are we indebted to the Caucasian race? To which branch is the palm of merit chiefly due? Name the different varieties included in this branch?

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CHAPTER XL.

Geographical Distribution of Man concluded.

The Mongolian variety of mankind is a family of great importance as regards numbers. The tribes of the Mogul-Tartars, the Turks, the Chinese, the Hindoo-Chinese, and the Polar races being included in it. These tribes cover a large portion of Asia, from the Ural and Himyla mountains to Behring's straits, and more than one-half of North America towards the Arctic circle; they also occupy Greenland and a portion of the north of Europe, comprising the Finland and the Lapland coasts.

The skin of this race is commonly of a sallow, or olive tint; and, in some cases, nearly yellow; the hair is black, and the cheek bones broad and flat. In intellect, they are in no wise defective, but are more distinguished for imitative than inventive genius.

The Ethiopic, or black variety of mankind, are characterized by complexions of a jetty hue, and black woolly hair. The principal Ethiopic families are the negroes of central Africa, Caffres, Hottentots, and the natives of Australia. The portion of Territory occupied by this race, is comparatively smaller than any of the others, with the exception of the Malays: the Mongolians occupying the greatest amount of Territory.

The chief localities of the Ethiopic race are Africa, south of the desert of Sahara, New Holland, New Guinea, and New Georgia. In intellect, the majority of the tribes of this race stand low, and show no inventive genius, but there have been some who evinced no mean degree of talent, both in politics and war.

The American race was originally spread over nearly the whole of the Americas: they are of a reddish brown complexion, have long black hair, high cheek bones, black deep set eyes, and, in their mental character, slow of acquiring knowledge. They have been divided into two classes, one of which embraces certain civilized nations, as the Mexicans, Peruvians, and Bogatese: the

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other includes all the hunting nations of the north. They also differ much in the colour of the skin and stature, some of them being of a perfect copper tint.

The original Patagonians were almost of gigantic size, while the Fuegians were found short of stature.

The Malay race are known by their tawny or dark brown skin, coarse black hair, and projecting upper jaws. In moral character, they are, generally speaking, inferior; but, in intellectual capacity, ingenious; and they are also fond of maritime enterprise: they inhabit Borneo, Java, Sumatra, the Phillipine islands, New Zealand, Madagascar, and various Polynesian islands.

Exercises.

Name the different tribes of the Mongolian race? What countries do they inhabit? What their bodily characteristics? What their intellectual character? What are the bodily characteristics of the Ethiopic family? Name the tribes composing this race? Are they numerous? Name the countries which they occupy? What is their intellectual character? Into what classes have they been divided? The original Patagonians? The Fuegians? Describe the Malay race? Their moral character? Name the countries which they occupy?

CHAPTER XLI.

Comparative extent of Islands in square miles.

NAMES.	Square Miles.
Andaman, Bay of Bengal, mountainous and woody ..	2,600
Anglesea, Irish sea, rich in copper and lead mines..	205
Australia, the largest island in the world, S. E. of Asia	2,323,800
Borneo, under the Equator, S. E. of Asia, rich in gold and diamond mines	217,900
Candia, in the Mediterranean sea	2,400
Celebes, in the Indian ocean, rugged and mountainous..	57,900
Cephallonia, one of the Ionian islands	225
Ceylon, to the S. of India, noted for Adam's Peak ..	19,400
Corfu, one of the Ionian islands	220
Corsica, in the Mediterranean, the birth place of Napolean	2,600

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Cuba, one of the West Indian islands	32,600
Cyprus, in the Mediterranean, noted for poverty and indolence	3,000
Dago, at the mouth of the gulf of Riga	260
Egripo, or Negropont, in the Grecian Archipelago	1,000
Formosa, in the Chinese sea, is Volcanic	12,100
Fyen, or Funen, in the Baltic sea	900
Gottland, in the Baltic sea, belonging to Sweden ..	990
Hainan, Chinese sea	9,300
Hayti, one of the West Indian islands	22,300
Jamaica, ditto	3,200
Java, to the S. of Borneo, very fertile, but Volcanic ..	39,800
Iceland, in the Atlantic, possessing Volcanoes and hot springs	15,800
Jesso, one of the Japan islands, abounding in mountains and forests	21,900
Kishm, in the Persian gulf	850
Lemnos, in the Grecian Archipelago	140
Lesbos, or Mytiline, in ditto, the birth place of Barbarossa	435
Luzon, one of the Phillippine islands	32,200
Madagascar, the fourth in size, S. E. of Africa ..	177,200
Madeira, in the Atlantic, W. of the coast of Morocco ..	520
Malta, near Cape Bon in N. Africa; very populous	100
Man, in the Irish sea	170
Newfoundland, in the Atlantic, E. of British America	38,100
New Guinea, N. of Australia	247,300
New Zealand, composed of two large islands, S. E. of Australia	75,300
Nipon, the largest of the Japan islands.. ..	62,200
Nova Zembla, in the Arctic ocean..	51,200
Rhodes, at the entrance of the Grecian Archipelago	460
Sagalin, in the sea of Okotsk	20,700
Sardinia, in the Mediterranean	7,700
Scio, in the Grecian Archipelago, rugged and mountainous	225
Shetland, N. E. of the Orkneys by about 15 leagues	245
Sicily, in the Mediterranean	7,600
Sieland, one of the islands of Denmark.. ..	2,100
Socotra, in the India Ocean, very mountainous ..	1,050
Samatra, in the Indian Archipelago, do. ..	120,200
Trinidad, one of the windward islands	1,470

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Van Dieman's Land, S. of Australia	19,300
Wight, in the English Channel, S. of Hampshire ..	95

CHAPTER XLII.

Comparative extent of Lakes and inland Seas in Square Miles.

NAMES.	Square Miles.
Aral Sea, in Independent Tartary	13,900
Azov Sea of, S. of European Russia	9,700
Baikal Lake, on the borders of Mongolia	9,700
Bear Lake Great, in British America	10,300
Black Sea, S. E. of Europe	102,800
Caribbean Sea, between the West India Islands & Columbia	811,900
Caspian Sea, N. of Persia	118,200
Como Lake of, in Northern Italy	54
Constance Lake of, partly in Switzerland and Germany	166
Dead Sea, Palestine..	340
Dembea Lake, at the eastern source of the Nile ..	1,130
Erie Lake, North America	8,400
Erivan Lake of, in Armenia	225
Fucino Lake, between the Appenines & the river Gariglione	38
Garda Lake, in Northern Italy	118
Geneva Lake of, partly in Switzerland and Sardinia	185
Hudson's Bay, North America	314,000
Huron Lake, North America	10,700
Keroun Lake, in the Oasis of Faioum W. of the Nile ..	148
Ladoga Lake, European Russia	5,600
Lomond Lake, in Scotland	21
Maggiore Lake, in Italy	68
Manatoulin Lake, British America	5,000
Mediterranean Sea, S. of Europe	700,600
Mexico Gulf of, between N. and S. America ..	489,700
Michigan Lake, in British America	11,800
Neagh Lake, N. E. of Ireland	102
Ness Lake, in Scotland	15
Neufchatel Lake of, in Switzerland..	66
Nicaragua Lake of, S. of Gautimala	4,800

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Onega Lake, in European Russia	2,650
Ontario Lake, North America	5,500
Palte Lake, in Tibet	300
Persian Gulf, S. W. of Persia	63,400
Po-yang-Hou, in China Proper	960
Red Sea, E. of Egypt, Nubia, and Abyssinia ..	133,500
Shahee Lake, in Azerbijan in Persia	1,400
Slave Lake, in America	11,800
Superior Lake, in ditto	27,900
Tchad Lake, in Soudan, Central Africa	12,500
Terkiri Lake, in Chinese Tartary	2,500
Titicaca Lake, S. E. of Peru. This Lake is 60 fathoms deep	4,900
Tong-ting-Hou, China Proper..	1,550
Van Lake, in Asiatic Turkey. This Lake is salt ..	560
Wenern Lake, Sweden	1,700
Wettern Lake, Sweden	630
Winder Mere, in England	7½
Winnipeg Lake, North America	7,800
Zarrah Lake, in Cabul	480

CHAPTER XLIII.

An Alphabetical List of the principal Mountains of the World, with their height in feet.

NAMES.	Feet.
Antisand, to the S. E. of Quito	19,126
Ararat, in Armenia, Turkey in Asia	12,700
Awatsha, in Kampschatka	9,600
Adam's Peak, Ceylon	6,650
Blue Mountains, in Jamaica	7,271
Ben Nevis, Invernesshire, Scotland	4,370
Ben Lawers, Perthshire, ditto	3,724
Ben More, ditto ditto	3,903
Ben Avourd, Aberdeen	3,940
Ben Lomond	3,240
Ben Ardtanich, Perth	3,500
Brocken, highest of the Hartz in Brunswick ..	3,486

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Chimborazo, Andes	21,451
Cotopaxi, East Andes and S. of Quito	18,862
Cotocache, near Quito	16,403
Corazon, to the W. of Cotopaxi	15,774
Carguciorazzo, near Quito	15,665
Col du Mount Cervin, to the E. of Sion in Valaise	11,182
Cader Idris, Merionethshire, Wales	2,914
Cheviot, in Northumberland	2,658
Carmel, Palestine	2,250
Cawsand Beacon, in Devonshire	2,000
Dhawalagir, the highest point of the Himyla in Thibet	26,462
Dunriggs to the S. of Peebles	2,408
Dundry Beacon, Somersetshire	1,668
Elynibo, (the ancient olympus) in Greece	6,250
Epomes, Lake of Ischia	2,517
Farm of Antisanna	13,425
Fichtelberz, in Barvaria	3,852
Frau, in Switzerland	11,517
Great Glocknor, bordering on Carintha	12,543
Galenstek, near the source of the Rhine	12,013
Gete, in the Island of Java	8,500
Great St. Bernard	7,962
Grenuarre	3,691
Gibraltar	1,440
Hecla, in Iceland	5,000
Horeb Mount	4,000
Heidelberg, highest point of the Bohmerwald	4,460
Helvellin, in Cumberland	3,055
Illinissa, near Quito	17,716
Il Gran Sasso, the highest point of the Appenines	8,791
Ida, in Candia	4,960
Ingleboro, Yorkshire	2,361
Jung-frauhenhorn, in Overland	13,725
Janersberg, highest point of the Sudets	3,195
Jurd, in Switzerland	6,173
Kong Mountains, in Abyssinia	20,000
Kamberg, Africa	5,644
Katschberger Pass, S. of Radstadt	5,214
Libanus, in Syria	9,526
Lupata Mountains, Africa	10,600

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Lions Head, Cape of Good Hope	2,160
Mount Elias, N. W. of America	17,840
Mowna Roa, Sandwich islands	16,474
Mont Blanc	15,630
Mont Rosa, in the Valais, Switzerland	15,527
Mount Egmont, New Zealand	15,304
Mount Cerwin, Valais	14,754
Mount Ozon, France	13,550
Mount Atlas, Morocco	12,500
Mount Perdu, highest of the Pyrenees	11,265
Mount Etna	11,000
Mountain in Otaheite	10,895
Maladetta, in Spain	10,479
Marschallhorn, in the Grisons	10,894
Mount Viso	10,051
Mount Rotondo, in Corsica	8,696
Mont Unokoe, the highest in Transylvania	7,872
Mount Maggiore, near Verona	7,335
Mount St. Barthelemy	7,365
Mount Mizen, highest point of the Cevennes	6,562
Mount D' Or, France	6,185
Mount Tendre, to the S. of Neufchatel	5,549
Mount di San Gennaro, N. E. of Rome	4,179
Malvern Hills, Worcestershire	1,444
Macgillicuddy's Reeks, highest point in Ireland	3,404
Madrid City, Spain	2,027
Moon Mountains, Africa	15,000
Mexico City, America	7,494
Needles of Argentieri, N. W. of Mont Blanc	13,381
Nevada, in Spain	11,900
Nephin, Mayo, Ireland	2,634
North Cape, Lapland	1,265
Orizaba, in Mexico	17,371
Ophir, in Sumatra, almost upon the Equator	12,955
Pichincha, near Quito	16,014
Peak of Teneriffe, Canary Islands	12,358
Peak of Mulahacen, highest point of Serra Navada	11,806
Platey Cogel, in the Tyrol	10,383
Pico, Peak of Azores	7,223
Pass of the Taures of Heiligenblunt	8,381

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Pass of the Simplon in Valais	6,575
Pavdinskoe Kemez, the highest point of the Ural Mountains	6,780
Parnassus, near Spitzbergen	3,955
Parnassus, (the ancient)	3,960
Peak, Alleghany Mountains, America	3,955
Plynlimon, Wales	2,463
Quito, Town of	9,000
Ringurahua, on the Eastern chain of Andes, near Quito	19,478
Rock Melun	11,428
Rathausberg	8,715
Roettruck, near Swuhn	6,000
Radicofana, S. of Sienna	3,055
Sangai, E. chain of the Andes, Peru	17,125
Sinchulahua, S. E. of Quito	16,423
Sochonda, China	12,800
Steiner Alp, highest of the Carnic Alps	10,941
Sugar Loaf, top of the Great St. Bernard	9,366
Summit of the Sierra Guadarrama, Madrid ..	8,520
Summit of the Sierra D'Estralla, Portugal	8,500
Schneehallan, frontiers of Norway	8,114
St. Gothard, Switzerland	6,805
Syltoppen, in Sweden	6,472
Swukn, in Sweden	6,050
Schneeberg, Africa	6,300
Sulphur Volcano, Guadalope, West Indies	5,106
Santo, frontiers of Norway	5,654
Sne Fiall, in Iceland	4,560
Schwarzwald, summit of the Ersgeberga	4,117
Snowdon, Wales	3,571
Sea Fell, Cumberland	3,166
Skiddaw	3,022
Stromboli, Lipari Islands	2,684
Snea Fall, Isle of Man	2,668
Soracte, N. of Rome	2,268
Sandi, or St. Catherine, in Arabia	6,000
Sierra Leone, Africa	4,000
Sennaar, City	6,000
Stony or Rocky Mountains, North America, highest part	6,150
Sorato, highest point of the Andes	25,000
Taurus Mount, highest point of Ramadan Oglu ..	8,500

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Tabor Mount, in Syria	2,750
Table Mountain, Cape of Good Hope	3,582
Tunguragua Mountain, Columbia	15,814
Valino Mount, in Naples	8,245
Vesuvius Mount, in Naples, Volcanic	3,820
Vosges Mount, in France, highest part	4,588
White Mountains, United States	6,234
Wachusett Mountain, United States	2,020
Whernside, Yorkshire	2,384
Wrekin, Shropshire	1,320
Yamunavatari, in the valley of Nepal	25,500
Zagora Mount, (ancient Helicon,) Greece	4,500

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In a previous chapter it was stated that all circles drawn on the Globe have been divided into 360 degrees. But it is evident that all circles have not the same circumference.

The circles called parallels of latitude, diminish in size from the equator to the poles, thereby causing a proportional diminution in the lengths of their degrees.

The following table will shew the number of Geographical miles contained in a degree of longitude at any parallel of latitude between the equator and the poles, the earth being considered a sphere.

Degrees of Latitude.	Miles.	Degrees of Latitude.	Miles.	Degrees of Latitude.	Miles.
1	59.99	31	51.43	61	29.09
2	59.96	32	50.88	62	28.17
3	59.92	33	50.32	63	27.24
4	59.85	34	49.74	64	26.30
5	59.77	35	49.15	65	25.36
6	59.67	36	48.54	66	24.40
7	59.55	37	47.92	67	23.44
8	59.42	38	47.28	68	22.48
9	59.26	39	46.63	69	21.50
10	59.09	40	45.96	70	20.52
11	58.90	41	45.28	71	19.53
12	58.69	42	44.59	72	18.54
13	58.46	43	43.88	73	17.54
14	58.22	44	43.16	74	16.54
15	57.96	45	42.43	75	15.53
16	57.67	46	41.68	76	14.52
17	57.38	47	40.92	77	13.50
18	57.06	48	40.15	78	12.47
19	56.73	49	39.36	79	11.45
20	56.38	50	38.57	80	10.42
21	56.01	51	37.76	81	9.36
22	55 63	52	36.94	82	8.35
23	55.23	53	36.11	83	7.31
24	54.81	54	35.27	84	6.27
25	54.38	55	34.41	85	5.23
26	53.93	56	33.55	86	4.19
27	53.46	57	32.68	87	3.14
28	52.98	58	31.80	88	2.09
29	52.48	59	30.90	89	1.05
30	51.96	60	30.00	90	0.00

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MATHEMATICAL AND PHYSICAL

GEOGRAPHY.

PART II.

CHAPTER I.

Physical Features of Europe.

Europe is washed on the north by the Arctic ocean, on the west by the Atlantic, and on the south by the Mediterranean, where it is separated from Africa by the narrow strait of Gibraltar: in fact, all Europe enjoys the advantages of a sea coast, with the exception of the east alone, where it is separated from Asia by an imaginary division. From the position of this continent with regard to the Old world, it would appear that it is in part situated in the north Frigid zone, while the greater part is situated in the north Temperate zone. Its greatest length is found to be about 3500 miles, and its greatest breadth, which is in the direction of longitude, is about 2500 miles. Its estimated area in square miles, the islands included, is about 3½ millions.

Europe, although the smallest of the great continents, is nevertheless distinguished above the others for the refinement of its population, the flourishing condition of the arts and sciences, large and well built towns, high cultivation of the soil, a powerful influence over other nations; but is the least distinguished for the beauty of its natural features.

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About one-third of the surface of Europe is mountainous, which is principally confined to the southern regions. The most elevated are the Alps, in Switzerland and Italy, from which, branches spread in various directions. The Appenines, the Pyrennes, the Cevennes, the Turkey mountains, and the Carpathian, are connected with the Alps.

The volcanoes of Europe are singularly detached from any of the great mountain chains. Vesuvius is too far to be considered as forming a part of the Appenines. Etna, in the island of Sicily, is the largest volcano in Europe, rising to the height of 10,000 feet.

The lakes of Europe are numerous and large, but there are none to vie with those of America. The largest, Ladoga in Russia, covers an area of 6330 square miles. Lake Constance in Switzerland, covers an area of 200 square miles, and that of Windermere in England, but 7½ square miles.

The rivers of Europe, though inferior in their courses and cataracts to those of other continents, are nevertheless numerous and interesting. The Danube and Rhine are the largest rivers which enter seas bordering on Europe: these rivers rising near each other, almost cut the Continent in two by their water courses.

The greater part of Europe, comprising the Netherlands and northern Germany, Denmark, Russia, and Prussia, consists of one immense plain, with very few undulations.

The mineral treasures of Europe, which will be noted in subsequent chapters, comprise iron in great abundance, copper, lead, tin, quicksilver, coal, salt, and precious metals in small quantities.

The climate of Europe is by some divided into three parts; first, the region of the lemon trees, figs, almonds, oranges, olives, etc., extending to the 48th degree of north latitude, enjoying a hot summer, pleasant spring, and short winter: secondly, the climate extending as far as 66 degrees north, known as the limits of the successful cultivation of wheat; and lastly, the frozen regions, where

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nothing is found but rein-deer moss, and no domesticated animal but the rein deer.

The entire population of Europe is estimated at about 240 millions, who chiefly inhabit the south and west. In Russsia and Sweden, the number of people to a square mile is from 16 to 19; but in Belgium, France, England, and Germany, the same amount of surface is occupied by from 150 to 240 persons.

Europe is physically divided into east and west Europe. Eastern Europe comprises Russia, Gallacia, Hungary, and Turkey: Western Europe comprises Spain and Portugal, France, Switzerland, Germany, and the Netherlands, Italy, Great Britain and Ireland, Denmark, Norway, Sweden, and Prussia.

Exercises.

How is Europe bounded on the North? On the west, south, and east? With regard to the Old World, how is Europe situated? Its greatest length and breadth? Its area in square miles? For what is Europe particularly distinguished above other Continents? For what is it least distinguished? Where are the mountainous countries of Europe? Describe their connexion? Name the principal volcanoes of Europe? Are they connected with the main chains? Name the largest volcano in Europe? Describe some of the chief lakes of Europe contrasted with those of other Continents? The Rivers? The great European lowland? The chief minerals? Describe the three divisions of climate? The probable amount of the population? The number to a square mile in the various countries? The physical division of Europe?

CHAPTER II.

England.

England on the whole is not a mountainous country, but possesses a diversified surface. The mountainous districts are chiefly confined to the west side and Wales. The chief ranges in these districts have been divided into three classes, viz, the Devonian range, which extends from Somersetshire, passes through Devonshire, and ter-

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minates at the Land's end in Cornwall: the Cambrian range extends from the Bristol channel, and passes through Wales: and the northern or Cumbrian range, extending from Derbyshire, and passing through Cumberland, enters Scotland. The loftiest summit of these ranges, (Snowden in Wales,) does not exceed 3671 feet above the level of the sea.

The principal elevations of England proper are, Scafell, 3166; Skiddaw, 3022; and Saddleback, 2787—all in Cumberland; and Helvellyn, 3055, in Westmoreland. The loftiest of the Devonian range does not exceed 1200 feet.

Among the mountains of Cumberland lie the celebrated lakes of England, the largest of which are Ullswater, Thirlmere, and Derwent-water. There are many more of less size as Butter-mere, Ennesdale, etc. The most beautiful is Ullswater, which extends into Westmoreland and is 9 miles in length, but does not exceed 1 in breadth. This country, sometimes called the district of the lakes, may be said to extend over the northern part of Lancashire, where Windermere and Conister even rival, in extent and beauty, those of Cumberland. The eastern counties of England are remarkable for their level surface.

The climate of England is very variable, but this is in a great degree owing to its insular situation; the southern parts however enjoy a temperature in some instances, five degrees above the other districts of England.

The principal mineral productions of England are coal, iron, copper, lead, tin, and salt. Coal, one of the most useful productions of the earth, is remarkably abundant in England; it is found especially in the northern and western districts. Iron, next in importance to coal, abounds in Derbyshire, Staffordshire, and Wales: it is also found in conjunction with coal in the forest of Dean, and in smaller quantities in various other parts of the kingdom. Tin is found in Cornwall, and part of Devonshire, from these two shires ancient Tyre is supposed to have been supplied with this peculiar metal. Copper is found in Cornwall, Devonshire, Staffordshire, and

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Westmoreland; also in Anglesea, and other districts of Wales. Silver is found in Devonshire, and Anglesea. Gold is found in the refuse of a mine in North Molton, in Devonshire. Graphite, or plumbago of an esteemed order, is found in Borrowdale. The finest alabaster in the kingdom is found on the shores of the Bristol channel. Salt is extensively found at Northwich in Cheshire, in beds 60 feet in thickness, and is supposed to be two miles in length, and about three-quarters of a mile in breadth. The annual produce of these salt mines is about 15,000,000 bushels.

The native trees of England are the oak, the elm, the beech, ash, maple, sycamore, alder, poplar, birch, holly, and yew. The finest oaks are met with in the southern districts of Great Britain, but chiefly in Sussex and Kent.

The grain of Britain consists of wheat, rye, oats, barley, and brigg, (a hardy species of barley). Wheat is cultivated in England at 1000 feet above the level of the sea, whilst oats succeed at double that elevation.

The native fruits of England are but few; the principal are the strawberry, raspberry, red and black currant, and gooseberry.

The reptiles of Great Britain are very few, and generally harmless, the viper or adder being the only venomous species.

Amongst the native birds of England, the goldon eagle ranks foremost, as being the largest as well as the most splendid: it frequents the Cambrian mountains, and Wales. The domestic poultry have been introduced from various parts of the globe. The peacock and common fowl from India, and the turkey from North America.

The draught horses of England are remarkable for their bulk, fine condition, and great strength. The race and riding horses have been improved by the best blood of Arabia and Barbary.

The ancient wild animals are mostly now extinct, as the wolf, boar, and beaver; the stag and wild ox are now rare. The rivers of England present trout, perch, etc., and the adjacent seas yield herring, mackerel, salmon, sole, and other edible fishes.

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Exercises.

Is England a mountainous country? Where do the chief mountain districts occur? What are the eastern counties remarkable for? How many feet above the sea is the highest summit of England? What is the effect of the surface of England on its climate? How is this accounted for? Name the chief minerals of England? Where do they occur? Name the native trees of England? Where do the finest oaks occur? What is the grain of Great Britain? The native fruits? The reptiles of England? The native birds? Which ranks first? The common fowl—where from? The animals of England? Name the extinct species? What are the productions of the rivers of England with its adjacent seas? England's lakes?

CHAPTER III.

Scotland.

Scotland consists of two distinct parts; the Highlands, and Lowlands. The Lowlands occupy the whole country south of the Friths of Forth and Clyde, also extending through the counties of Fife, Forfar, Kincardine, and Aberdeen, to the borders of the Moray Frith. A large portion of the Lowlands is very hilly; the most remarkable are the Cheviot, not exceeding 3000 feet above the level of the sea. The Highlands consist entirely of continuous ranges of lofty mountains, intersected in the interior by rocky valleys called glens. The remarkable glen of Glencoe may be mentioned as the most terrific spot in Great Britain. The Grampian barrier extending across Perth and Argyle is so connected as to be entered only by formidable passes, several of the summits attaining 4000 feet high; Ben Macdui, the loftiest, rising to the height of 4410 feet. The valleys in these regions form elevated situations, but admit only of the culture of the coarsest grain, and that in scattered patches.

The Lowlands do not even present any such plains as are met with in south Britain; the arable lands are chiefly comprised in the broad valleys called straths or carses. In a valley of this kind Inverness is situated; hence it is that wheat is cultivated to that limit.

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The islands of Scotland may be considered as forming a third division. The Clyde islands and Hebrides, some of which are at so short a distance from the main land as to be almost considered part of it. Bute is remarkable for its fine climate. Arran for its magnificent scenery and geological phenomena. The Hebrides are characterized by rude rocks, deep valleys, and large tracts of peat-moss. Staffa is remarkable for Fingall's cave, and is scarcely more than a large rock.

To the north of Scotland lie the Orkney and Shetland islands; these, though not mountainous, are rocky, bare, and exceedingly moist. The Zetland islands form one of the boldest extremities of Europe but their climate is cold and bleak, owing to their unsheltered situation from the Arctic and Atlantic oceans. These islands are completely bare, though it is supposed that in ancient time they were of larger extent, but by the violence of winds, and waves of the ocean, they have been completely intersected by lake-like inlets called voes.

The mineral treasures of Scotland are less than those of England; there are however some important coal fields. Iron ore is in some instances met with in the coal mines: magnetic iron ore occurs particularly in the Zetland isles. Between Lanark and Dumfriesshire there is a large deposit of lead mixed with silver. Silver has been found in Sterlingshire and in Argyleshire. Native gold is found at Glen Turret in Perthshire, and at Lead-hills, in Lanarkshire. Scotland also produces garnets, rubies, amethysts, topaz, hyacinth, aqua-marina, cairngarm, agate, rose-quartz, precious serpentine, etc.

In Scotland, extensive plantations have been formed in most parts as a protection to the cultivated lands. These plantations consist chiefly of larch and fir, but some oaks, ash, and elm have been found. It is calculated that in Scotland there are about 1,000,000 acres under wood.

Scotland formerly abounded in wild animals, particularly the wild boar, the wild ox, and the wolf. Birds of prey, as the eagle, the falcon, and owl, are still found in

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the Highlands and western islands, where also deer and game birds are abundant. Aquatic birds frequent the more precipitous shores, and hares and rabbits everywhere abound. The rivers of Scotland produce salmon and trout, and the neighbouring seas abound in herrings, haddock, cod, and flounders.

Exercises.

How is Scotland naturally divided? What parts do the lowlands occupy? The most remarkable hills in the lowlands? Their greatest height? What is the characteristic scenery of the highlands? The Glen of Glencoe? Where are the Grampian hills? To what height do they attain? Name the highest mountain of Scotland with its probable elevation? The valleys of these regions? Are the plains as extensive in Scotland as in England? What comprises the arable land? What are the islands of Scotland considered as forming? Describe the Hebrides? Arran, Bute, Staffa, Orkneys, and Shetland Islands? The climate of these Islands? Describe the mineral treasures of Scotland? The plantations? How much land is computed to be under wood? Name the chief animals of England with the extinct species? The birds of prey? The produce of the rivers and seas of Scotland?

CHAPTER IV.

Ireland.

Ireland, on the whole, is not a mountainous country, the central districts form one vast plain which crosses the whole island from east to west. The mountain ranges of Ireland are greater in extent and elevation than in England: they are unconnected with each other and form separate groups. The most elevated mountains are in Kerry, viz—Mac Gillicuddy's reeks, or peaks, situate near the romantic lakes of Killarney, which reach the height of 3410 feet above the level of the sea. The remaining mountainous districts of Ireland include Wicklow, part of Mayo, and the borders of Leinster are occupied by lofty ranges of slieve broom. The county of Antrim, in Ulster, presents a barren range of rocky cliffs of a bold

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and peculiar character, of which we may mention the splendid basaltic columns, called the *Giant's causeway.*

The vast plain, occupying the interior, abounds in small hillocks and ridges of limestone; the hollows formed by these ridges being occupied by peat-bogs, for which Ireland is remarkable. These bogs, it must be remarked, disfigure the beauty of the scenery, and are serviceable only to supply fuel. The chief of these morasses is the bog of Allan, which stretches across the counties of Kildare, Carlow, and the King and Queen's counties. In this bog, the celebrated river Boyne rises.

The beautiful lakes of Killarney are embosomed in the mountains of Kerry. These lakes, three in number, vary in size and scenery. The largest, called Lock-Lane, or the lower lake, consists of several wooded islands, one of which discovers the remains of an ancient castle, and another, that of an ancient abbey. The middle lake is divided from the lower lake by the promontory of Muckross, but is accessible by two small channels. The beauty of the middle and lower lakes is derived from the grandeur of the towering mountains surrounding their shores, and from which the streams are seen to descend like so many glittering cascades. The third, or upper lake, is about 3 miles from the middle one, but communicates with the latter by a descending stream. The landscape surrounding the upper lake is of enchanting loveliness.

Ireland contains many coal mines, which, although not hitherto used; may be of future importance. Iron is abundant in Connaught. Lead is met with in many parts of the island; and Ross island, in the lake of Killarney, contains a copper mine: a peat-bog in the county of Cork also contains this metal. Native gold has been found in Wicklow. Crystals of a beautiful order have been discovered in Ireland, especially granite in the Mourne mountains near Newry; as have also specimens of topaz and beyrl.

Ireland had at one time some large forests, but they were completely annihilated by Cromwell's army to pre-

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vent the Irish from taking refuge or shelter within them. There are still some remains of the ancient oak and ash woods, and there are now strong hopes entertained, that ere long, the many new plantations will add materially to the characteristic appearance of the country.

The southern part of Ireland is considerably warmer than Ulster: the snow seldom lies long; the spring is earlier; fruit ripens a fortnight sooner, and the harvest is a month before the northern districts, and about a fortnight before the midland districts. The moisture of the climate is its greatest defect, but this varies in a remarkable degree. The atmosphere of the west is more humid than that of the east, from being more exposed to the moist vapours of the Atlantic. Again, the county of Dublin is wetter than that of Wicklow, because the clouds charged with rain pass over Dublin towards the channel, whilst those of Wicklow, attracted by the mountain tops, deposit their moisture upon their western slopes, leaving the eastern sides of the county between them and the sea, dry.

Of the animals of Ireland, we may particularly mention the Kerry cows, which are of a very small and beautiful form, excellent milkers, and remarkable for their quiet and gentle disposition. The old Irish breed are usually of a light red, head very small, the horns growing upright and remarkably slender, as also the legs. They are deficient in beauty, but valuable for the dairy. The red deer, though now very scarce, are still found at Killarney. The wolf-dog, now almost extinct, is still occasionally seen in Ireland. It has been supposed that Ireland possesses no reptiles, but this is a vulgar error; the toad and frog are common.

Exercises.

Is Ireland a mountainous country? Name its chief mountain districts with their greatest height? Describe the vast plain in the interior? Describe the bogs of Ireland? Where does the Boyne rise? Describe the Lakes of Killarney? Name the chief minerals? Is Ireland a woody country? Account for its ancient forests? Describe the climate of Ireland? What is its defect? Describe the animals of Ireland?

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CHAPTER V.

Norway and Sweden.

These countries, sometimes called the northern highlands of Europe, comprise the ancient Scandinavia. The Dovrefeld mountains traverse their whole western side from north to south, nearly 1000 miles. These mountains exhibit many bold and lofty summits covered with perpetual snow. The most lofty, Sneehatta, is about 8000 feet above the level of the sea. They emit minor branches into Norway, which is situated between them and the sea, consisting of a narrow region, in some part not more than 150 miles in width, and extremely rugged, though intersected by many valleys, among which may be mentioned the beautiful valley of Guldal, in the province of Drontheim. Inlets of the sea intersect the shores of this country in all parts, passing through lofty and fearful rocks. This region, notwithstanding, possesses the mildest climate belonging to the western side of the Old continent; and Drontheim is the northern limit in the world for the cultivation of wheat.

These inlets, where they are not exposed to the dashing waves of the ocean, are clothed to the water's edge with beautiful forests of pine, juniper, and fir; behind these forests rise magnificent hills in progressive magnitudes, and extending to the summits of the Dovrefeld; thus presenting the most striking and picturesque scenery.

The centre of Sweden is occupied by an immense plain, intersected by many picturesque lakes, and covered with large forests. The southern part, called Gothland, is a large peninsula, enjoying a milder climate than any other in Scandinavia. The northern districts possess a very cold climate, arising principally from the elevation of the land above the sea; the snow-line descending here as low as 3000 feet; perpetual snow, even in table lands, occurs in these regions, and cultivation is confined to the hardier species of grain.

Lapland, situated almost within the Arctic circle, experiences a very severe climate, though far milder than the

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same latitude in North America. The surface of Lapland is much varied; large level tracts occurring in some parts, while in others, the most elevated hills rise to the height of 4000 feet. The North cape is in the island of Qualoe, as is also Hammerfest, the most northerly town in the world.

Finland greatly resembles Sweden in its physical features, abounding as it does, in forests and numerous lakes. The winter is here very severe, and the gulf of Bothnia becomes so completely frozen, that sledges cross from Finland to Sweden.

The mines of Scandinavia are particularly rich, the silver mines of Knogsberg being the richest in Europe. The copper mines of Roras, and the iron mines of Arendal, are very productive. The iron obtained from the mine of Danemora, is considered the best in the world.

The shortness of the warm season in summer is compensated by the length of the day, for the sun is scarcely five hours below the horizon, even in the southern provinces; while in Nordland and Finland, there are several weeks during which he does not set. Vegetation is consequently very rapid, and within three months the corn is sown and reaped. In winter, again, the day is proportionally short, and in the northern parts, there is a night of several weeks duration.

Sweden possesses an equable climate considering its high latitude, but the heat is great in summer.

On the whole, it is not a mountainous country, but is diversified by lakes, cataracts, and green valleys.

The trees and plants are nearly similar to those of Great Britain. Most of the animals common to other countries of Europe, are found in Norway. The horses, and horned cattle are small, and goats are more numerous than sheep. The rein-deer, the Laplanders treasure, are very numerous; sometimes the rich possess 2000 of these animals, and the poor seldom less than 200.

The country abounds with game of various kinds, and its coasts with shell fish, especially the lobster.

Among the wild animals are the bear, lynx, wolf, and

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lemming, (a species of rat) which, proceeding in immense swarms from the Kolar mountains, devour in their progress every production of soil.

Exercises.

What was the ancient name of Norway and Sweden? Name its chief mountain range with its height above the sea? Describe the situation of Norway? Its width in some parts? Describe the scenery of Norway? The climate? Describe the centre of Sweden? Gothland? The northern climate? Describe the position of Lapland? The height of its most elevated hills? The North cape? The most northern town of the world? Describe Finland? The gulf of Bothnia? The mineral treasures of Scandinavia? Describe the variation in the length of the day? What is the consequence of this on vegetation? Describe the climate of Sweden? The trees and plants? The animals? The chief treasure of the Laplander? Describe the produce of the Scandinavia coasts and its wild animals?

CHAPTER VI.

Holland, Belgium, and Denmark.

These countries, which form a large portion of the great European lowland, present a flat and undiversified appearance; the minor branches from the Rhenish mountains giving a somewhat hilly character to the southern part of Belgium. Holland, which forms the lowest portion of the great lowland, is in many parts nearly on a level with the sea: this country, some time since, consisted in a great measure of harsh, barren sands, producing only heath and fir, but, by the skill of cultivation, it now presents the appearance of a garden.

The picturesque scenery of Holland is uninteresting, the country appearing like an extensive marsh, intersected in sundry parts by ditches and canals; yet the spectator is relieved by some features of great interest: immense meadows of the most beautiful verdure, covered with cattle, sheets of water, groups of trees, and, in the vicinity of large towns, elegant villas surrounded with gardens

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and peaks, beautified with statues and busts. The Zueder Zee, in the north, now occupies the bed of an ancient lake, and also the district of a country through which a river, issuing from the lake, pursued a course of 50 miles: this was caused by the district occupying so low a situation with regard to the ocean, whose tide swept over it to the extent of above 60 miles.

The mouths of the Scheldt, in the tenth century, spread in broad estuaries, and left the islands of Beveland, Walcheren, and Schowen, as vestiges of the country which they overwhelmed. The salt lake of Dort was suddenly formed by an inundation which destroyed 72 villages. To prevent future calamities of this kind, large dykes of earth, so broad as to admit two carriages abreast, have been raised to obstruct the tidal wave.

Holland does not contain any mineral deposits, and the fuel used is chiefly turf or peat.

The chief crops cultivated are wheat, madder, tobacco, flax, and hemp; but the rural wealth consists principally of cattle.

Belgium presents a pleasing variety of gentle eminences, undulating plains, meadows, and rich corn fields.

The Mease districts are hilly and highly picturesque; being naturally fertile, or improved by assiduous cultivation, they yield the most luxuriant crops. The climate of Belgium resembles that of the southern counties of England.

The kingdom of Denmark presents on the whole a flat appearance, and the soil is generally sandy; but, owing to its insular situation and its consequent humidity, these level tracts are converted into marshes. From the same cause, it is not subject to severe frosts, but its summers are chilly and moist, so that wheat will not ripen, though barley, rye, and oats are extensively sown.

This country is void of any rivers of magnitude, but is watered by rivulets or brooks. Of the islands; Zealand, Funen, Zaaland, and Falster, are fertile and pleasant. In the south of continental Denmark, the soil is very fertile; but in the north, the country presents a

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dreary aspect of moors with wastes of red sand, totally destitute of vegetation. The horses, particularly of Holstein, are remarkable for their strength and agility, and the horned cattle are likewise of a superior description.

Exercises.

Describe the surface of Holland? Belgium? Denmark? The southern part of Belgium? The surface of Holland with regard to the ocean? Of what did the soil of Holland consist in ancient time? Its present appearance? By what aspects is the scenery decorated? Account for the Zueder Zee? The islands of Beveland, Walcheren, and Schowen? The salt lake of Dort? To prevent the tidal wave from again overwhelming the country, what precautions have been taken? Does Holland contain any minerals? What are its chief crops? Describe the scenery of Belgium? The crops? The climate? Describe the surface of Denmark? The climate? Does Denmark contain any rivers of magnitude? How is it then watered? Describe the islands belonging to Denmark? The southern soil of continental Denmark? The northern? Describe its chief animals?

CHAPTER VII.

Pyrenees, Spain, and Portugal.

The Old world is traversed by a remarkable chain of mountains, stretching from the shores of the Atlantic to the opposite shores of the Pacific ocean; the whole length being not less than 8000 miles, and varying in breadth from 500 to 2000 miles. This chain, it must be observed, is not altogether continuous; but, from its situation of mid-way between the Equator and the north pole, considerably affects the climate of those regions through which it passes. In the west of Europe, this mountain system bears the name of the Pyrenees, remarkable alike for the magnificent scenery of its central parts, and its numerous assemblages of elevated summits. The valley of Adessa, near this last mountain, is said to be 3000 feet deep, and is the deepest in Europe. Branches from the Pyrenees extend into Spain and Portugal, rendering the surface of those regions very irregular.

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The Cantabrian range stretches across the whole northern coast of Spain, leaving a narrow tract possessing only a few fertile valleys between the mountains and the sea. The Iberian range, diverging at right angles from the Pyrenees, extends southerly through almost the whole of Spain. From these, the Castalian range, rugged and romantic, extends into Portugal with the name of Sierra Estrello. The other branches are the Sierra of Toledo, the Sierra Navada, and the Sierra Morena. The snow line here reaches the height of 10,000 feet; but as many of the summits of Sierra Navada rise higher, they are consequently capped with perpetual snow. Mulahacen, the most lofty, is 11,673 feet high. The plain of Vega, between these latter mountains and the Mediterranean, is singularly beautiful and fertile. The city of Granada, in the latter plain, for situation and prospect, presents all that is romantic and sublime in natural scenery.

Through each of the extensive plains within those mountain ranges flows a great river, which receives the smaller streams issuing from the heights parallel to its course. The central part of Spain is an elevated table land, containing several towns at a great height above the level of the sea. Madrid is 2200 feet above the sea.

The climate in so mountainous a country is necessarily various. In the valleys and lowlands, the heat during the summer months is excessive, and the low districts of Andalusia, Murcia, and part of Valencia, are visited by scorching winds from Africa, called Solano. On the more elevated grounds the temperature is cooled, and the interior is subject to piercing winds.

The soil is in general fertile: besides wheat, maize, rice, hemp and flax of the finest quality, oats and barley; the usual products of southern latitudes, viz., olives, figs, vines, oranges, and lemons are plentifully found.

The minerals of Spain are of great value. Silver is found in the province of Estramadura: Iron abounds in many parts: copper, tin, lead, quicksilver, may also be mentioned. Rock salt occurs in vast masses, especially at Cordona: it is also abundant in Portugal.

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Coal deposits are found in various parts of Spain, but of little importance.

The native animals of Spain are little known. The Spaniel dog is considered a native of Spain. The merino sheep are said to have originated from the English sheep. The horses of Andalusia have long been famous, and the mules are likewise much celebrated. The bulls are remarkably fierce, and wolves are the chief beasts of prey.

Exercises.

Describe the position of the chief mountain land of the Old continent? Where in Europe does this mountain land commence? Describe the scenery of the Pyrenees? The valley of Adessa? Name the chief branches extending from the Pyrenees? At what height does the snow line lie? Name the loftiest mountain of Spain? Describe central Spain? The elevation of Madrid? The climate? The periodical winds? The soil? The minerals? The chief productions? The animals and beasts of prey?

CHAPTER VIII.

France.

France is separated from Spain by the Pyrenees mountains, and presents on the whole a level appearance. There are some mountains however which far exceed any of Britain; of these, the Cevennes, which are separated from the Pyrenees by the valley through which the canal of Languedoc extends are the most remarkable, attaining to the height of 6000 feet above the sea, and are very steep and difficult of access. The Auvergne mountains branch off from the Cevennes, and extend into central France. These mountains are supposed to have been of volcanic origin. Mount D'Or is remarkable for its high and conical form, reaching 6707 feet above the level of the sea. France is separated by a branch of the great Alpine system from northern Italy and Switzerland: Luceira and Loupillon in this part

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reach the height of 14,000 feet. Mount Jura is also a continuation of this branch; indeed, the whole country west of these elevations is remarkable for its romantic and picturesque scenery. The Vosges mountains branch off from Jura, and constitute the eastern boundary of northern France.

In the hilly districts, and in the valleys through which the rivers glide, especially the Seine and Loire, the scenery is often highly picturesque and beautiful, but the country may be regarded as in general uninteresting.

Central France is occupied by a table land, or plateau of great extent, but the major part of the country, including the northern, and a large portion of the eastern districts, may be considered as forming a part of the great European lowland.

France, situated in the middle of the temperate zone, enjoys a peculiarly fine climate, but it varies considerably in different regions. In the north it resembles the climate of the south-west of England, but in summer it is rather hotter as well as more humid, and in winter the cold is sometimes more severe. The temperature of the central regions, especially the provinces of Touraine and Limousin is delightful, and the air pure, light, and elastic.

The storms and hail in this region however, occasionally destroy the vintage and corn, and the frost occurs later in Spring and earlier in Autumn than in the south of England. The heat of the southern region is excessive during the months of June, July, August, and part of September. In the mountainous tracts of this region, the storms are often dreadful.

The vegetation of some parts of France corresponds nearly with that of Britain. The northern lowlands admit of the successful cultivation of all fruits of the lowlands of England, but in greater perfection; owing to the higher temperature of France. In the southern and eastern districts, in consequence of a different climate, the maize, vine, and olive, take the place of wheat: and on account of a still warmer climate on the borders of the Mediterranean, the pomegranite, jujube, fig, pistachio, and mul-

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berry, arrive at great perfection. Oranges however cannot without shelter succeed in France.

Among the wild animals of France may be mentioned the wolf; the bear is still found in the Pyrenees, and the wild boar frequents some of the forests.

Amongst the birds of this country, may be noticed grouse, beak, blue-throat warblers, etc.

The minerals of France, which are very considerable, comprise coal (which is found in many parts of France) and iron; the latter in great abundance, though much below that of England. Antimony is found in such quantities, as would supply the whole of Europe. Silver, copper, cobalt, zinc, and alum, may also be enumerated.

Excellent freestone occurs in many parts, especially in the neighbourhood of Paris, and near to the same city are extensive manufactories of the celebrated plaster that bears its name: beautiful marble is found in the Pyrenees.

At Salins, in Franche Comte, are salt springs. The mineral waters are at Aix, Bagneres, and Barages. The hot springs of the latter place are well known.

Exercises.

Is France a mountainous country? Name its chief mountain ranges? For what is mount D'Or remarkable? How is France separated from Italy and Switzerland? Name the highest mountains in this part of the Alpine system with their greatest heights? Describe the appearance of the country west of these mountains? The valleys of the Seine and Loire? Describe Central France? The climate of France? That of the central regions? The warm months in the southern regions? Describe the vegetation of France? The productions of southern France? The productions on the borders of the Mediterranean? The wild animals? The birds? The minerals of France? The salt and hot springs?

CHAPTER IX.

Italy.

The Pyrenees are succeeded in the great mountain system by the Alps. These are again (though not natu-

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rally) divided into nine groups; viz., the Cottian, the Graian, the Pennine, the Helvetian, the Rhetian, the Noric, the Carnic, the Julian, and the Maritime; the latter does not belong to the central band, but branches off towards the south: they are perhaps better known as the Appenines. The Appenines, under the name of Ligurian, first encircle the gulf of Genoa, and from thence traverse the whole of Italy. The declivities of the Appenines present on all sides, valleys and plains of the greatest beauty. The summits of the Appenines differ from those of the Pyrenees, as being of a rounder form, and not so elevated; the highest not exceeding 9000 feet above the level of the sea. The valleys and lowlands of Italy are celebrated for their beauty and fertility.

The extensive plains of Lombardy are considered the most fertile in Europe, as is also the valley of Naples for its beautiful and picturesque scenery. A considerable portion of Italy is occupied by a swampy waste, called the maremma; the unhealthy influence of which renders it uninhabitable in the summer and autumn: this tract stretches from Leghorn to the Neapolitan frontier, a distance of 200 miles. Nearly parallel with Naples, juts a small peninsula whose capital is Tarento, once a rival of Rome. This peninsula contains plains of unrivalled beauty, adorned with the richest groves of oranges and citrons. The Lipari islands are all of volcanic formation. Malta is not volcanic, but very rocky; the highest point being only 590 feet above the level of the sea.

The vegetation of Italy and Sicily is rich and varied. From the confines of France to Calabria, the soil is a deep alluvial mould, but further south it becomes light and sandy. Corn, pulse, and other vegetables; maize, rye, cotton, silk, vines, olives, and delicious fruits, are amongst the productions of this fertile country. The wheat of Sicily is considered to be some of the finest in Europe.

The climate of Italy is on the whole delightful: in the Neapolitan territory however, the heat during the summer is excessive, and its effect is occasionally rendered

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peculiarly oppressive by the sultry wind called the Sirocco, which blows from the warm regions of Africa.

The native quadrupeds of Italy include the wolf and wild boar: among the domestic animals of Italy, the horses and sheep of Naples are famous. Among the most remarkable birds are the rose-coloured starling, the blue thrush, the hoopoe, and the crimson-winged wall creeper. Quails are very abundant in Malta. Among the insects of Italy may be mentioned the venomous tarantula spider. The scorpion also occurs in Italy. The insects of Sicily are very numerous, flights of locusts almost unknown in the rest of Europe have frequently visited and devastated this fertile island. Although in such a mountainous country as Italy, mineral treasures may be supposed to abound, yet its mines are entirely neglected.

Marble of uncommon beauty is found in the north, and in the neighbourhood of Florence and Sienna. Alabaster, jasper, agate, rock-crystal, and other precious stones are found in the Apennines.

Exercises.

Name the nine political divisions of the Alps? By what range are the Maritime Alps succeeded? Describe its locality? The scenery of the slopes of the Apennines? The summits of the Apennines and how they differ from the Pyrenees? For what are the lowlands of Italy celebrated? The plains of Lombardy? The valley of Naples? Describe the maremma? Tarento and its position? The Lipari isles? Malta? Describe the soil and productions of Italy? The wheat of Sicily? The general climate of Italy? The Sirocco? The native quadrupeds? The domestic animals? The birds? The insects? Those of Sicily and the effects of locusts on the island? Describe the minerals of Italy?

CHAPTER X.

Switzerland.

Before proceeding with the physical features of Switzerland, it may be well to say more of the Alpine system.

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The Alps differ in appearance from the rugged Pyrenees, and from the rounded Apennines, as presenting a more imposing form; the Alpine summits are sharp, and in some parts pike or needle shaped. The system of the Alps does not spread into extensive table lands, but forms vast ridges intercepted by low valleys, containing several large lakes. In consequence of this variety, the climate considerably varies in this region: the snow-line lying here at 9000 feet above the level of the sea, a large number of the summits must necessarily be capped with perpetual snow. The highest summit is Mount Blanc, 15,781 feet above the level of the sea. The Helvetian, or Swiss Alps, extend from the Simplon to Mount St. Gothard, forming the southern boundary of the extensive valley called Valais, through which the Rhone flows. The principal mountains which branch off from the Helvetian, are the Jorat, which, extending to the lake of Geneva, form its northern steep and rocky shores.

Switzerland is considered the most elevated country of Europe, the Alps not only forming its southern and eastern frontiers, but they even penetrate the chief part of the interior. In many respects, Switzerland is one of the most interesting countries which the traveller can visit. Here, nature wears every variety of aspect, perpetual snow, glaciers or ice-fields of the higher Alps, avalanches, or masses of snow falling like mountains loosened from their foundations, bold craggy precipices, dashing cataracts and roaring torrents form the chief characteristics of this peculiar country. The lakes of Switzerland form a grand and interesting feature in the landscape, and some of the noblest rivers, as the Rhine and Rhone, issue from its mountains, and wind along its vales; in fact, the whole of southern Switzerland affords scenery of the grandest and most pleasing description. The northern portion of Switzerland presents a different appearance to that of the southern districts, and the western region is occupied by an extensive plain. The eastern parts possess some lesser branches of the Alps, but none to reach the limits of perpetual snow.

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The soil of Switzerland is varied, and the traveller sees with wonder, rocks clothed with vineyards, and grounds which appear accessible only to the ibex and goat, subdued by the plough. Switzerland, in addition to the common kind of grain, produces abundance of fine fruits.

The climate of Switzerland is of every variety, from the cold of Lapland to the excessive heat of Spain or Italy.

Of the animals that frequent the Alps, the ibex or rock goat, the chamois, a species of antelope, and the mermot, may be mentioned. The bearded vulture is peculiar to Switzerland. In so mountainous a country, metals are less abundant than might be expected.

The chief mines are of iron, but silver, copper, and lead have been found.

Exercises.

Describe the physical features of the Alps? Their greatest height? Describe the Helvetian and its chief branch? Is Switzerland a mountainous country? Describe the characteristic features of the country? The lakes of Switzerland? How does the southern portion differ from the northern? The western and eastern regions? The soil of Switzerland? The chief productions? The variety of climate? The chief animals? The mineral treasures?

CHAPTER XI.

Carpathian Mountains, Greece, and Turkey.

From the Julian Alps extend the Carpathian mountains, which occupy the whole of the northern and eastern frontiers of Hungary, thus defending that country from the chill north winds which sweep across the great European lowland, and thereby rendering its climate so mild, that the choicest productions of southern Europe may be raised with perfection. Hungary, it must be remembered, does not generally enjoy these advantages, as some parts are bare and rocky, others covered with swamps, and others are occupied by barren hills of blown sand.

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In the Carpathian mountains wolves are common, and bears are occasionally seen, and some of the most beautiful birds inhabit their vicinity. The golden or imperial eagle may be found here.

The mineral treasures of Hungary next claim our attention. Gold and silver are obtained in great abundance from the mines of Schemnitz and Kremnitz; here are also found iron, copper, lead, mercury, and extensive deposits of coal and salt. Pursuing the great mountain system, the next in succession are the Dalmatian, or the Dinoric Alps. This range, situated between Hungary and the Adriatic gulf, joins the Alpine system with the Turkey mountains. These latter, sometimes called the Balkan, extend to the Black sea. The characteristic scenery of these mountains is romantic and rugged, and the higher summits are supposed to be covered with perpetual snow. From the southern side of the Balkan diverge branches of great extent, imparting a peculiarly wild and rugged character to the scenery. The most easterly branch from the Balkan, named the Strandshea range, approaches the shores of the Black sea, and terminates in the sea of Marmora, thus ending the great European mountain system. From the Albanian range, extensive branches enter Greece, from which may be traced the classic names of Helicon, Olympus, and Parnassus: these mountains enclose many valleys of great fertility. In the centre of the Morea rises the ancient Arcadia, which consists of an elevated table land, and presents, in many parts, beautiful valleys, and other districts alike remarkable for rugged scenery and gloomy appearance.

The islands of Greece next claim our attention; they are numerous, and of an interesting appearance. The Cyclades, though apparently rocky, are covered with the richest verdure, present the most attractive scenery, and are celebrated for the statuary marble which they contain. The cavern of the small island of Antiparos, is of singular appearance, the floors, roof, and sides being completely covered with incrustations of alabaster, being

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the only one of a similar formation. The rocky island of Samothracia is particularly remarkable, as appearing in sacred history as the place at which St. Paul touched on his way to Phillippi. It stands at the height of 5248 feet above the level of the sea; is exceedingly beautiful, and covered with luxuriant verdure. The island of Candia (ancient Crete) is one of the largest islands of the Mediterranean: it is mountainous in the interior, but the coasts are filled by plains and valleys of great fertility, and covered with groves of myrtles. The Ionian islands, though not of great height, are rocky and picturesque: corn is scarce, but wine and fruits are abundant.

To the north of the Balkan range are situated the plains of Bulgaria, which, in some parts, are bleak and rugged, and in others covered with swamps and marshes; though a large portion of the country shows considerable beauty and fertility. The plains of Wallachia and Moldavia, beyond the Danube, are extensive and beautiful; but, from their level situation, they experience very hot summers, and very severe winters. The Danube is usually frozen for six weeks so as to bear the heaviest carriages, and yet these plains are in the same latitude as the south of France; this difference naturally arises from the unprotected locality of the former by any mountain range.

The soil of Turkey is generally of a rich mould. In the northern provinces, wheat, barley, chesnuts, apples, pears, and other fruits are produced: maize, rice, tobacco, and even the sugar cane; oranges, olives, almonds, and figs are amongst the productions of the south.

The horses of Turkey, especially those of Thessaly, have been long celebrated; and the sheep of Wallachia are remarkable for their long spiral horns.

Exercises.

Describe the Carpathian mountains? The natural appearance and climate of Hungary? The animals of the Carpathian mountains? The birds? The minerals? Describe the connexion between the Alps and the Balkan or Turkish mountains? The scenery of these mountains? Describe the branches from these

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mountains? Name the limit of the great European mountain system? Describe the mountains of Greece? The Arcadia? Describe the chief islands of Greece? For what is Samothracia remarkable? The cavern of Antiparos? Describe the plains of Bulgaria? Those of Wallachia and Moldavia? The climate north of the Danube? The cause of this with regard to the climate of similar latitudes? The soil of Turkey? The productions of the north? Those of the south? The horses of Thessaly, and the sheep of Wallachia?

CHAPTER XII.

Germany, Poland, and Russia.

Germany consists, to the northward, of a vast low plain, protected only from the encroachments of the ocean by means of large dykes. This country, it is more than probable, would be one arid waste, were it not for the abundant supply of rain and snow, peculiar to its surface. The eastern countries suffer from the winds which sweep across those unprotected plains. The low region is almost destitute of trees, and presents little more than sandy wastes and peat bogs; the banks of rivers and small interior plains alone presenting anything resembling fertility. To the eastward of the Elbe, which runs through this plain, fertility appears greatest; and here the sandy traces are covered with large forests of pine. The Baltic coast is flat and sandy, but the deltas, formed at the mouths of the Vistula and Niemen, are very fertile.

Poland is a continuation of the Germanic plains, and may be considered as an addition to the great European lowland. The provinces of Gallacia and Ladomirina are however exceptions, their surface being somewhat more elevated, and are remarkable for mildness of climate, great fertility, and dense forests. The forests of Germany are very noble, and include most of our well-known trees. The wild boar still inhabits the German woods.

The mineral treasures of Upper Germany and Poland contribute but little to the wealth of Europe; there are however beds of brown coal found in the level districts of

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Poland, and in the more elevated districts, extensive beds of salt have been discovered. The excavations of the latter production at Wieliezka are said to extend 7 or 8 miles, and to be nearly a mile and a half in breadth, and to reach the depth of from three to four thousand feet.

The vegetation of Germany and of Poland very much resembles that of Great Britain and of northern France. All the grain capable of being cultivated with us, is advantageously grown in Germany.

In European Russia, the great lowland expands to the breadth of 1200 miles; the largest extent of level surface in Europe; interrupted only by the Valdai hills. This great lowland, consisting chiefly of immense levels, denominated steppes, is separated by the Uralian mountains from the more extensive plains of northern Asia. In the southern districts however, and chiefly in the Crimea, there are some steep and picturesque ranges of hills. The level plains of southern Russia, which are watered by the great rivers Dnieper, Dniester, and Don, are mostly covered with luxuriant pastures, and, by cultivation, have produced crops of the finest wheat.

The climate of Russia is much colder than any of the other European countries occupying similar latitudes, and the farther we proceed eastward, we find it still colder, but the summer heat in Russia is in general greater than in other countries in the same latitude. In the centre of Russia are found extensive forests: pine, fir, and birch abound in the northern regions.

The domestic animals common in other parts of Europe are found in Russia, and such is the extent of its territory, that the camel and the rein-deer, animals of opposite climates, are both domesticated within its limits.

Among the wild animals may be mentioned the bear, the wolf, the lynx, the chamois, the antelope, the elk, the beaver, the ermine, the marten, the musk-deer, and the musk-rat.

The chief mines of Russia are in the Ural mountains: valuable mines of copper and iron abound in Perme, and the neighbourhood of Moscow is celebrated for iron.

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Salt abounds in several provinces, and springs of naptha occur in the district of Boracon and the island of Tuman,

e the sea, enjoy a cool and temperate climate. Bor-
ng on the black sea, dense forests occur (of about 24
.es in width), extending to the height of 4000 feet on
.ie declivities of their more immediate mountains.

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The climate and scenery of this locality are extremely beautiful and picturesque, the mountains, to the rear of

arity in the animals of this country, that they all
fine long hair. Of the wild animals of Asiatic Tu
we may name the lion, (which never appears far
west than the Euphrates,) the jackall, and the hyæna, t

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ibex, and the antelope. The mineral treasures of Turkey, with the exception of the copper mines of Tocat, are unknown. Hot-springs occur at Bursa, near the foot of the Olympus.

Exercises.

Describe the chief mountain range of Asia minor? By what names is part of this range distinguished? The height of Mount Argeus? Describe the central region of Asia minor? The surface bordering on the Black Sea? The soil and productions of this locality? The table land of Armenia? Its greatest height? The valley of Mush? The peculiarities of the valley of Bitlis? The salt lake Van? The position and height of Mount Ararat? For what is this latter region noted? What has been supposed relative to the western bank of the Caspian? Describe the domestic and wild animals of Turkey? The minerals?

CHAPTER XIV.

Palestine.

The mountains of Lebanon we find connected by the Amanus with the Taurus; these mountains traverse the whole of Syria, and rise to a considerable height, many of their summits being capped with perpetual snow. In their southern course they form two branches familiarly known as Libanus and Anti-Libanus, which enclose a broad valley known in history as Cœle-Syria. The cedars of those mountains are now but few, scarcely 400 in number. From the range of Libanus diverge the mountains of Palestine: they are by no means elevated, having more of a hilly than a mountainous appearance. The chief risings are known as Carmel, Tabor, and Abarim. The characteristic scenery of these eminences is picturesque and beautiful; they do not rise in bleak and rugged peaks, but gradually; their slopes being adorned with vineyards, whilst their summits are clothed with luxuriant woods and the richest pastures. It is a remarkable fact, that even the clefts of the rocks are occupied by large

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numbers of bees, so that this land may be literally said to flow with milk and honey. The valleys are also remarkable for their great fertility. Turning our attention to the territory in the neighbourhood of lake Asphaltites, or the Dead sea, we find a far different prospect: the surface is only interrupted by fearful precipices, so lofty as to preclude the rays of the sun from the deep and solitary glens they enclose; the massive rocks assuming many fantastic forms.

The locality and surface of Palestine are in themselves sufficient to recommend it as a good land. Palestine, stretching by the Mediterranean, or Great Sea, possesses hills of sufficient elevation to attract moisture, and, at the same time, so low as to admit of cultivation to their summits; thus enjoying a sufficient supply of rain to retain its fertility; whilst in the months when those rains are suspended, copious dews water and refresh the land. The surface of Palestine on the other hand, from its inequalities, favors the growth of most plants of different zones.

The climate of Palestine, from Tripoli to Sidon, is much colder than the rest of the coast farther to the north and south, and its seasons are not so regular. The mountainous parts of Judea are remarkable for their vegetable productions, differing so widely from those of the sea coast. Galilee is remarkable for being cool and fresh, while, in the plains of Jericho, the heat is intense.

Most of the forest trees already mentioned as occurring in southern Europe are also found in Palestine, but of a superior order. The orange, citron, pomegranate, mulberry, fig, olive, and vine. The grain of Palestine comprises wheat, barley, rye, beans, maize, rice, dhoorah, and sesdmum. The olive trees and pomegranates grow to an unusual size, and the fig trees are very elegant, but the vines excel all the other productions of Palestine. The bunches of grapes are described by travellers as weighing from 10 to 12lbs., and the grapes to be as large as plums. Thus do we find this land to be a land of wheat, and barley, and vines, and fig trees, and pomegranites; a land of oil and honey, an exceeding good

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land. Notwithstanding the exuberent fertility of this land, it has not been without its natural evils—earthquakes, drought, whirlwinds, and devastating locusts have, at various periods, visited this country.

The animals that originally inhabited Palestine are, from its great antiquity, quite unknown to us. Sheep, oxen, goats, camels, and asses appear to be its principal occupants at present. Among the wild animals are the roe-buck, antelope, hare, coney, jerboa, and camelion.

Exercises.

Describe the mountains of Lebanon? The valley of Cœle Syria? The cedars of Lebanon? The chief mountains of Palestine? Their characteristic scenery? The produce of the clefts of the rocks? The valleys? Describe the territory of the Dead Sea? What natural features of Palestine prove its high character? On the suspension of rain, how is the land watered? The climate of Palestine? Describe the vegetable productions of the mountainous districts of Judea? Describe the trees of this country? The grain? The grapes? The physical evils visitant on this country? Describe the domestic and wild animals?

CHAPTER XV.

Arabia and Persia.

Arabia, once a productive and flourishing country, is now almost desolate; its ancient cities nearly laid in ruins, and without an inhabitant. This country is remarkable for its sublime and precipitous rocks, in the clefts of which the ancient inhabitants chiefly lived. The Peninsula containing the wilderness of Sinai is a deep valley 50 paces in width, shut in by immense masses of granite, often rising perpendicularly to the height of from 1000 to 1200 feet, with large fragments scattered at their base. The country, at the foot of Mount Horeb, is equally wild, and the whole district to Ezion Gaber presents the appearance of a troubled sea.

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The general character of Arabia (though it may contain some fertile and well-watered valleys) is that of bare rocks and barren sands. The situation of Arabia, and its lack of moisture, combined with its high temperature, may be considered as the cause of its desert appearance. The hills of Arabia are not much elevated; they chiefly encircle those parts bordering on the sea, rather than run through the interior of the country. By this, the moisture becomes condensed and falls on those mountains, from which it rushes down in torrents rather than rivers, thereby leaving the interior (which is but little known) without fertilizing showers, the moisture being lost and absorbed in the sand.

On the borders of the Red sea, not a trace of vegetation is to be seen, that region being mostly occupied by ranges of barren mountains. The southern coast is not much better. In the south-eastern districts the mountains rise rather abruptly from the sea, but in their northern course, between their base and the sea, a tract occurs, occupied by numerous valleys which display the richest vegetation, being adorned with noble forest trees and groves of almond, fig, orange, citron, and other valuable trees.

The highest summit here is about 6000 feet above the level of the sea. To the westward of this mountain range extends the Great sandy Desert, which, apparently, occupies a considerable surface in the interior. Arabia Felix is little deserving of such a name, as it is generally unfit for cultivation, through an almost continual drought.

Arabia has long been famed for the abundance of its odoriferous plants.

The most noted of the domestic animals are the horse and camel: of its wild animals, the antelope, the wild ass, wolf, fox, jackall, hyæna, and panther, deserve particular notice. Resuming the grand central mountain system, we find the Caucasus a connecting link between the Armenian and Hindostan mountains. The central portion of the Caucasus is composed of porphyry, and consists of a plateau of 8,000 to 10,000 feet above the level of the sea, which is cut in every direction by narrow deep

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valleys, and crossed by a ridge of rugged and picturesque eminences, whose tops are covered with perpetual snow. Mount Elbourz is here 16,500 feet above the sea, lying on the northern border of the fertile and beautiful country of Georgia, which is perhaps the richest on the globe.

The animals common to the Caucasian range are the lynx, bear, urus, chamois, and antelopes.

Persia is in general a mountainous country; from the south of the Caspian to Ormus Strait there is a succession of deserts, and in all the southern provinces the plains, as well as the mountains, are sterile and bare.

The rivers, which are few and small, generally enter lakes in the interior. The northern districts are remarkable for their beauty and fertility. The elevation of the plains above the level of the sea (about 4000 feet) renders the climate mild, and adapted to the growth of plants of temperate regions. The want of internal elevations renders the interior arid, there being no mountain ranges to attract moisture, and it is only in the districts bordering on mountains that any streams occur, or any great fertility prevails. Wheat, rice, barley, and millet, are the common crops. The fig, pomegranate, almond, peach, and apricot, are natives of this climate, and the vine and orange trees grow here luxuriantly.

The horses of Persia, if inferior to the Arabian in speed, surpass them in elegance: the sheep are remarkable for their length of tail, which in some cases, have weighed more than 30 lbs. Among the wild animals are the lion, the leopard, the panther, the bear, and the wild boar. The Norway rat (improperly so called) is a native of Persia.

Exercises.

Arabia in ancient times? The remarkable features of Arabia? The wilderness of Sinai? The foot of Mount Horeb? The general character of the surface of Arabia? What the probable cause of its desert appearance? Account for the barren surface of the interior? Describe the surface bordering on the Red Sea? The southern coast? The south-eastern districts? The productions here? The locality of the sandy desert? Arabia Felix?

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The description of the Arabian plants? The domestic and wild animals? The peculiarities of the Caucasus? Their greatest elevation? Georgia? The animals which inhabit the Caucasus? The surface of Persia? The rivers? The northern districts? The climate of Persia? What the probable cause of the arid aspect of the interior? Where does the greatest fertility prevail? The productions? The Persian horses? The sheep? The wild animals?

CHAPTER XVI.

China.

The great Alpine system again appears under the name of Hindoo Koosh, which bounding Hindostan on the north, extends to the valley of Assam, nearly 2000 miles. The most lofty of the Hindoo Koosh is 20,500 feet above the level of the ocean. The summits of the Hindoo Koosh are intersected by some fertile valleys, but their declivities are completely destitute of trees. The Himaleh mountains, the highest on the globe, are connected with the Hindoo Koosh by the range of Tibet Panjahl. This stupendous Himaleh range terminates at the river Brahmapooter, from whence the great central system is connected by the Harpala range with the mountains of China. China may be regarded in general as a flat and fertile country, although in some places diversified by chains of mountains of considerable elevation. One of its most remarkable features is the number and magnitude of its rivers, which have contributed in a great degree to its early cultivation. These mountain ranges are in some parts so steep as not to admit of cultivation, but are covered to a considerable elevation with fine trees, and intersected by narrow and fertile valleys. The mountain ranges of China extend to the borders of the Pacific, which may be regarded as the termination of the great mountain system of the Old world.

The climate of China is excessive, and affords an instance of the difference in the climate of regions situated

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on the eastern shores of the Old continent, and those of similar latitudes on its western shores; for example—at Pekin, which is half a degree south of Madrid, the cold is so great, that during the winter the rivers are frozen over for three or four months, whilst in summer the heat greatly exceeds that of southern Spain.

In no region of the east has agriculture arrived at greater perfection; the cultivation of every spot being requisite for the support of its teeming population. The principal article of culture is rice, which is chiefly raised in the southern parts of the empire. By the acuteness of the Chinese, even the beds of the lakes, ponds, and rivulets are made use of for the growth of the water chesnut in particular, and which produces a wholesome and delicate fruit. Besides the orange, tamarind, and mulberry trees, the tallow tree is peculiar to China, yielding a green wax which is manufactured into candles. But of the native productions of China, the most remarkable is the tea plant, which grows chiefly in the hilly parts of the country. It grows to the height of about five feet, and its leaves are narrow and indented at the edges. The forests of China are but very few.

Among the minerals, a natural composition of zinc and iron may be mentioned: also a species of white copper, and the fire clay and earth from which the celebrated porcelain is manufactured. The district around Pekin abounds in coal, which is usually pounded and baked with water into cakes before burnt.

Exercises.

Under what name does the great Alpine system again appear? Where is the Hindoo Koosh? Tell the probable connection of the Himaleh with the Hindoo Koosh and the former with the mountains of China? The termination of the great central mountain system? The general surface of China? Its most remarkable features? The scenery of its mountain ranges? Describe the climate of China? The climate at Pekin as contrasted with that of Madrid in the same latitude? The chief productions of China? Is it a woody country? Describe its minerals?

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CHAPTER XVII.

Hindostan.

This vast country, included between the Indus and the Ganges, presents a great variety in its surface. Its loftiest mountains branch off from the Tibet Panjahl, which, with the latter range, form a regular oval of snowy mountains, almost surrounding the fertile valley of Cashmere. On the declivities of these mountains many thousand acres are covered with apple and pear trees and vines in full bloom, without an owner. The principal mountains intersecting the peninsula of India are the Vindhyas, which cross from east to west, forming the northern boundary of the table land which occupies the centre of the peninsula. The eastern Ghauts run parallel to the Coromandel coast, and do not exceed 3000 feet in height. The western Ghauts, bordering on the Malabar coast, are much more elevated.

The surface of India has been variously classed into four divisions; first, wide and sandy deserts; second, undulating hilly countries, fertile and well watered; third, flat high districts or table lands, which, from their elevation, enjoy rather a cool temperature; and fourth, large plains watered by large rivers. The major part of the low, or flat country, is of a marshy nature called jungle, and is unfit for cultivation; the other divisions are distinguished by their own natural productions.

India possesses many large rivers, the chief of which is the Ganges: this river, considering its many tributaries, drains a large territory of northern India. The portion known as the valley of the Ganges is the richest and best in India. The valley of the Indus lies in the north-west of the Vindhya range, the soil of which is generally sandy, and covered with a saline efflorescence.

The district of Scinde, on either side of the Indus, has, in appearance and vegetation, been compared to Egypt. The Thurr, or the desert of India, is not altogether without vegetation, though in the hot months not the

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slightest appearance of vegetation can be discovered; yet the sandhills, after the monsoons, become partially covered with grass and numerous plants of desert species, whose berries, leaves, or fruits are wisely supplied in such a locality as food for man. The coast of India is remarkably flat, and the shores are only known to mariners by the tall cocoa trees which surround the villages and temples. The inundations of the Ganges cover and fertilize immense tracts of the level country near the river, while other parts, more remote, procure the same by artificial means. The vast alluvial plain of Bengal is distinguished by luxuriant fields, divided by groves of tall trees, with villages under their shelter thickly populated.

The forests of India are very extensive, and include many plants known in our country as shrubs, but which appear there as timber trees. Amongst the trees of those forests are many of our species, as the walnut, ash, weeping willow, and a species of oak, the trunk of which often reaches 100 feet before the branches spread. The remarkable Banyan tree, growing on the banks of the Nerbuddah, is described as covering an area, the circumference of which is 2000 feet: 320 of the large trunks have been counted at one time, and upwards of 3000 of the smaller. It is said that 7000 men obtained shelter under this tree at one time. One of the most remarkable trees is the teak, which rivals the oak in firmness, and is an excellent wood for ship building. Of the fruit trees of this country, the most noted are its various species of palms. Rice is the chief food of the Hindoos, and the principal article of cultivation, but wheat, barley, millet, and maize are raised, as also the sugar cane, the mulberry, cotton, indigo, etc.

Among the animals of India may be mentioned the solemn ape, the common India monkey, the Asiatic lion, the royal tiger, leopard, hyæna, wild cat, porcupine, elephant, rhinoceros, wild hog, four-horned antelope, wild sheep, and the Brahman bull with its remarkable hump. It is a singular fact, that the cow and sheep in high latitudes of northern regions diminish in size, and a similar

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effect appears on others by a removal into a hot climate; thus, in central Asia, the ass, which is unknown in a wild state, but has been tried in a domesticated state, does not exceed the size of a Newfoundland dog.

The birds of India are very numerous, and of a beautiful description; the peacock is a native of India.

Reptiles are very numerous, amongst which are crocodiles, and a great variety of serpents. India also teems with insects, among which are found the silk worm, and the destructive white ant.

The minerals of India, though abundant, are only met with in small quantities; gold and silver are found in some parts; iron is widely diffused, and large deposits of coal occur in some districts. Among the precious gems we find the diamond (which is found in the beds of some rivers), the ruby, topaz, precious garnet, amethyst, cat's eye, etc.: jasper, agate, and cornelian, are also very abundant.

The climate of India is, on the whole, ill suited to the health of Europeans. There are three seasons, viz.—the rainy, cold, and hot. The first extends from June to October; the second from November to February; and the last from March to May. During the rains the climate is most unhealthy. The temperature of the atmosphere during the hot months varies from 72 degrees to 100 degrees: at Calcutta it varies throughout the year from 69 to 90 degrees; at Bombay it is somewhat higher, and at Madras still higher.

Exercises.

Between what rivers is Hindostan situated? Describe its mountain ranges with their characteristic scenery? The height of the Ghauts? Into what classes has the surface of India been divided? Describe the peculiarities of these divisions? The chief river of Hindostan? Describe the valley of the Ganges? The district of Scinde? The desert of India? For what are the coasts of India remarkable? The plain of Bengal? Describe the forests of India with their most remarkable trees? The Banyan tree? The chief productions of grain? Describe the animals of India? The effects of climate on some animals? Give examples of this? The birds,

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reptiles, and insects? The mineral productions of India? The climate? Describe the rainy, cold, and hot seasons? The temperature at Calcutta? Bombay and Madras?

CHAPTER XVIII.

Northern Asia, Tibet, and Siberia.

From the Hindoo Koosh diverge northerly, extensive mountain ranges. The Kuenlun, the most northerly of these ranges, forms the northern boundary of the elevated table-land of Tibet. This table-land is surrounded on all sides by mountains clothed with perpetual snow. The Belor also diverge from the Hindoo Koosh, and may be traced to the mountains of China. From the same Hindoo Koosh extend the vast Altai mountains, separating Tartary from Siberia, under the names of Yablony and Aldan, extending to the Pacific, near Behring's Straits. These mountains are not of great elevation, the highest summit however attains the height of 11,000 feet. The peninsula of Kampschatka is also visited by a branch from this system, which gives to it a mountainous character. The Uralian range, which separates Siberia and European Russia, may perhaps be considered as a separate range, rather than a branch from the central system. These mountains are not of an elevated character, but increase in altitude in their northern course, some peaks rising to the height of 9000 feet. The Uralian mountains are celebrated for their mineral treasures, which have lately risen into great importance.

The table-land of Tibet is bounded on the south by the lofty Himelah mountains, and (as before mentioned) on the north, by the little less elevated Kuenlun. This plateau may be considered as the most elevated on the globe, its average height being about 10,000 feet above the level of the sea; yet the cold is not so intense as might be supposed, and the fields are covered with rich pasture and numerous flocks and herds.

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A country so mountainous may be expected to abound in minerals, but they have not been found to any great extent: cinnabar ores, rich in quicksilver, rock-salt, and tin, have been found in great quantities.

Among the native vegetable productions of Tibet are apricot, walnut, apple, gooseberry, and raspberry trees, also the hazel, willow, oak, juniper, etc.

Among the animals are the musk-deer, resembling the hog in shape, with hair not unlike the quills of a porcupine; the ox, whose glossy tail is employed by the luxurious orientals for driving away flies and other insects; and the goat, whose fine hair is manufactured into shawls.

To the north of the Keunlun range is the great Desert of Gobi, or Cobi, in the middle of which is the isle of Shamo, or sea of sand. The length of this desert is 1200 miles, and the breadth from 500 to 700 miles. Through the middle of the whole of its length extends the Shamo, or sand sea, varying in breadth from 150 to 250 miles, and at an elevation of 4000 feet above the level of the sea; rich in the finest metals and gems. The table-lands of Tibet and Mongolia are separated by the Belor range from the plains of Turkistan, which stretch to the Caspian sea. They gradually decline in elevation as they approach the shores of the latter, and those of the lakes of Zaizang and Aral, forming a series of terraces which end in the salt steppes of the neighbourhood of the latter lake.

The greater part of this region consists of a desert tract, and in some parts is overgrown with brushwood and scanty herbage; the country bordering on the river Volga is very swampy. Great Buckaria, situate on the Oxus, and Turkistan on the Jaxartes, are fertile regions abounding both in corn and pasture. Gold is found on the banks of the Oxus, and also very fine rubies. The Caspian sea abounds in water fowl and fish. Nearly the whole of Northern Asia is occupied by the vast lowland of Siberia. The northern and eastern parts present marshy plains of great extent, covered with almost perpetual snow, and intersected by large rivers which pursue their courses under surfaces of ice to the Arctic Ocean. Even in the central

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ranges vegetation is in a great measure checked by the severe cold, but towards the south there are large forests and luxuriant crops; the broad level belt, which stretches across the southern parts, consists of little else than marshy and salt steppes, yielding only saline plants unfit for the use of man.

The climate of Kampschatka is very severe, scarcely enjoying three months exemption from frost, by which the culture of the hardiest species of grain will not succeed In the northern wastes of Siberia the rein-deer supplies the place of the cow and the horse. Wild horses and asses roam over the deserts in the south; Lasha stags, the musk animal, and the wild boar, haunt the environs of lake Baikal.

The minerals of Siberia are very valuable, including iron, copper, and a considerable quantity of gold.

The vegetation of Siberia bears a strong resemblance to that of Northern Europe. The scarcity of hard wood trees such as the oak, beech, etc., forms however a striking feature in this region. It is worthy of notice, that the deficiency of vegetation found in Kampschatka and Northern Asia is compensated by the abundance of animal food afforded by the number of land animals, as well as marine, and the countless flocks of grouse, woodcocks, wild geese, and ducks, which frequent this region. The elk, the arctic fox, and polar bear, are also inhabitants of this region. Among the domesticated animals, the Siberian dog holds a prominent position, being much employed in Kampschatka and in many parts of Siberia for drawing sledges over the snow-capped surface.

Exercises.

Describe the northern mountains extending from the Hindoo Koosh? The greatest height of the Altai mountains? The peninsula of Kampschatka? Describe the Uralian mountains? The table-land of Tibet with its boundaries? Its greatest elevation? Its climate and surface? Its mineral and vegetable productions? Describe the great desert of Gobi? Its elevation above the sea? The plains of Turkistan? The country bordering on the Volga? Great Buckaria on the Oxus, and Turkistan on the Jaxartes? The

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products of the Caspian sea? Describe the vast lowland of Siberia? The climate of Kampschatka? The animals of the northern wastes of Siberia? The minerals of Siberia? The vegetation? What compensates for the deficiency of vegetation in these regions?

CHAPTER XIX.

Physical Features of Africa.

Africa, lying on almost equal sides of the Equator, might be expected to enjoy an uniformity of climate, but such we find is not the case. It therefore appears that other causes, producing diversity of temperature, act on a large scale in these large tracts of territory. The extensive Atlas mountains occupy almost the whole northern portion of Africa, from which the small but fertilizing rivers of Barbara and Morocco flow. The lofty ranges of Samen and Taranta occupy another portion of northern Africa. These are again, through the interposition of the mountains of the Moon, prolonged to a great extent in the interior, and form a series of elevated terraces and table lands throughout Abyssinia and the surrounding country. Of Central Africa little can be said; but the greater portion of that region must be occupied either by mountains or large plateaus, from the supposition of many important rivers taking their rise in these regions; many parts of it however are found sandy and barren, but on the banks of the Niger it is extremely fertile and populous. The eastern portion of Africa is but little known; some mountains, however, of inferior elevation to those of Northern Africa, occupy this region, the most elevated of which reach the height of 10,000 feet above the sea. In Western Africa are the Qua mountains and the Rumi range, the former exceeding the latter by 2000 feet in elevation. In this region is also found the lofty peak Camaroon, 13,000 feet high, which is almost lined to the top with trees of luxurious growth. The proximity of Fernando Po to the continent, which contains the lofty Clarence peak, is very remarkable. This island is separated from

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the main land by a depth of not less than 40 fathoms, presenting undulations the most remarkable on the globe.

From Cape Verde commence the Kong mountains, which, from the southern boundary of the Sahara, extend to an unknown distance in the interior. The physical features of Africa are most remarkable, for the extent of desert occupying sundry portions of its surface, which are almost without elevated land, and void of water streams. The largest of these is the Sahara, or Great Desert, resembling a vast sea of sand, which, like an agitated sea, rises in waves of sand sometimes mountains high; again raised by whirlwinds in the form of water spouts, or moving pillars, whose tops almost touch the clouds. This vast desert covers an area nearly three times as great as the whole of France, and extends from the shores of the Atlantic to the confines of Egypt. On the confines of the latter however, its *oases* become more frequent; and, on the borders of the Nile, the desert is replaced by the greatest fertility. The great sterility of these deserts is supposed to exist from the almost entire absence of water and trees; the latter, as before observed, having great influence in attracting and condensing vapour. It is worthy of notice, that the deserts, or Karroos of Southern Africa, do not resemble the Great Sahara, either in surface or appearance. The Karroos resembling rather the steppes of Northern Asia. This difference is attributed to the proximity of the latter to the ocean, and their consequent supply of rain; but as these rains are only periodical, in the succeeding dry season all vegetation disappears. The regions, south of the Sahara are, however, very fertile, which is accounted for by the appearance of so many lofty mountains in their immediate neighbourhood, which give rise to many magnificent rivers, the consequent effect of which is fertility to the regions which possess them. The Kong mountains, which extend into the interior, present a picturesque appearance, and give rise to the rivers Senegal and Gambia; the Niger silently flowing through the valleys of the same. The characteristic scenery of the rivers is

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beautified by large woods occupying their borders. The vicinity of lake Tchad is not so interesting, being almost inadmissible from thickets and overgrown grass, and also the resort of lions and other wild beasts. Africa, it may be mentioned, is rich in gold, chiefly in the locality of Ghonah.

Exercises.

Africa's connexion with the Equator? Does this completely govern its fertility and climate? The locality of the Atlas mountains? The mountains of the Moon? Their scenery in Abyssinia? Give some account of Central Africa? The banks of the Niger? The eastern and western portions of Africa? The lofty Camaroon? The island of Fernando Po? Describe the course of the Kong mountains? For what is the physical geography of Africa remarkable? Describe the Great Desert? The probable cause of its sterility? The Karroos of southern Africa? In what respects do they differ from the Great Sahara? The region south of the Sahara? The probable cause of this fertility? The scenery of the Kong mountains? The rivers rising in these mountains? The scenery of these rivers? The features of the vicinity of Lake Tchad?

CHAPTER XX.

Barbary States, Egypt.

The north-western part of Africa forms the Empire of Morocco. This territory, situated between the Atlas mountains and the sea, is considered the most favourable for the dwelling of man. The lowland, between the latter mountains and the sea, varies in breadth from 30 to 150 miles, and is watered by many streams. Wood is very scarce here, but the soil and climate are well adapted for the cultivation of corn. The Atlas mountains in some parts attain the height of 11,000 feet, presenting trees of immense size, among which may be mentioned the pine, cedar, mountain ash, etc. From the Atlas range diverge many branches into Algiers, giving the latter a varied aspect. The valleys exhibit great natural beauty and

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fertility, which are rendered more so by the presence of luxuriant groves of oranges, citrons, and pomegranates.

To the eastward of Algiers, lies the spacious and fertile plain of Tunis, where once stood the ancient Carthage. To the eastward, still lies a territory, far different to that in the vicinity of the Atlas mountains; sandy and desert plains succeeding those of the greatest fertility.

Mount Atlas yields silver, copper, and lead in abundance, and the plains are remarkable for their salt lakes.

Salt springs are more numerous than fresh, and hot springs occur in many districts.

Among the wild animals of those regions we may mention the lion, panther, hyæna, jackall, etc. Serpents, scorpions, and locusts are the greatest scourges of the country.

Egypt consists of an immense valley (enclosed by mountains and deserts), which gradually widens as it approaches the sea: its length is about 500 miles, and its breadth, at the Delta, about 150; but the cultivated land, following the course of the Nile, is not more than 27 miles. The inundations of the Nile are very remarkable, and the chief dependance of the country. On the 18th and 19th of June the waters begin to rise, and continue increasing until September, when the whole country appears like an extensive lake, presenting here and there, amidst the waters, patches of various kinds of trees. It is also remarkable that the waters subside as gradually as they rise, and leave behind them a rich alluvial soil, from which the most abundant harvest ensues.

As the valley of Egypt decreases in breadth, the surface becomes more and more mountainous. In Abyssinia, one mountain range succeeds another, presenting bold and rocky heights, from which issues the majestic Nile already described. The declivities of the beautiful mountains of Abyssinia are covered with forests of tamarinds; the citron and orange tree growing wild.

The climate of Egypt is extremely hot, and is scarcely ever visited with rain; its great fertility must therefore be attributed to the overflowings of the Nile.

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The vegetation of Northern Africa is nearly allied to that of southern Europe, but Egypt possesses some tropical plants. Among those of the latter country may be mentioned the papyrus, from which the ancients made their paper.

Of the ancient animals of Egypt, the hippopotamus is peculiar, but rare, and the crocodile appears only in Upper Egypt.

Exercises.

With regard to Africa, how does Morocco lie? Describe the territory between the Atlas mountains and the sea? The greatest height of these mountains? Their scenery? The mountains of Algiers? The valleys of Algiers? The plain of Tunis? The northern regions towards Egypt? The minerals of the Atlas range? For what are the plains remarkable? The wild animals of northern Africa? The surface of Egypt? Its breadth at the Delta? The limits of cultivation following the course of the Nile? Describe the inundations of the Nile? The appearance of the country in September? The effects of these inundations? The Abyssinian mountains? The climate of Egypt? Is rain frequent? The ancient use of the papyrus? The ancient animals of Egypt?

CHAPTER XXI.

Eastern, Southern, and Western Africa.

The eastern coast of Africa presents, on the whole, an aspect of fertility. To the south of the straits of Babelmandeb are some lofty mountains, approaching within a few miles of the ocean, and covered with fine pasturage. Adel, situated between the latter straits and Cape Guardafui, abounds in frankincense and myrrh. The coast of Ajan presents a desolate mass of rocks and sand, but the interior is fertile and produces gold, ivory, and ambergris. Proceeding still southward, we find the soil of Mozambique particularly fruitful, and the rivers streaming with gold. Still southward lies Sofala, which possesses a genial soil, and mines of gold so pure and abundant, that

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they have been conjectured to be the Ophir of King Solomon, but now the site of a few miserable mud cabins. Among the productions of Eastern Africa may be mentioned the Colombo plant, which grows spontaneously in the forests of Mozambique.

The animals of these regions comprise the lion, panther, antelope, buffalo, and elephant.

Southern Africa is occupied in many parts by karroos, which, as before observed, resemble the steppes of northern Asia: other parts are thickly covered with brushwood, which chiefly consists of stunted thorny bushes. To the north of some parts of the territory of the Cape of Good Hope, the country is very productive in corn and fruits, magnificent and valuable trees, and plants of singular appearance. Among the trees of that locality may be noticed the almond, chesnut, plum, orange, lemon, and fig, the latter sometimes reaching the height of 60 feet.

Among the animals may be mentioned the pig-faced baboon, lion, jackall, Cape ant-eater, elephant, white rhinoceros, two-horned rhinoceros, zebra, Cape buffalo, etc.

The birds, peculiar to the Cape, are the vulture of the Karroos, eagles, falcons, barn and great horned owl, and the secretary bird, or snake eater, peculiar to the sandy plains, and the enemy of all reptiles.

Western Africa, from the limits of Cape Colony to Lower Guinea, is remarkably sterile, and, for a distance of 900 miles, scarcely a single fresh-water spring is to be found. In the south-western part some volcanic rocks are supposed to exist. To the north of Espiegle bay, the country becomes more diversified, presenting green hills, and beautiful valleys stretching almost to the water's edge; while others again are swampy, presenting nothing but mud. Passing through the gold and ivory coasts, which are flat and thickly wooded, we arrive at the Grain coast, so called, from a species of pepper brought from thence, which was much esteemed in Europe, and sometimes known as "Grains of Paradise." Passing on still to the Cape Verde, the most western point of Africa, the country presents the mouths of several rivers, the banks of which are thickly wooded and highly productive.

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takes the place of mountains abounding in
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Rocky mountains, so called, from their bare granite summits. These mountains, in some parts, attain the height of 15,000 feet, and stretch from the Isthmus of Panama to the borders of the Arctic ocean. Towards the latter, they break off into several parallel ranges, in which appear some elevated table lands. Another range, which occupies the eastern parts of North America, known as the Alleghany mountains, stretch from the northern limits of Georgia almost to the St. Lawrence. These, though extensive, are far inferior in elevation to the Rocky mountains, the highest summits scarcely exceeding 6000 feet, while the general range varies from 2000 to 3000 feet.

North America possesses many remarkable lowlands, which generally appear sandy, and bear a strong resemblance to the steppes of Northern Asia. These lowlands are naturally separated by the mountain ranges already described, the eastern, lying between the Alleghanies and the Atlantic; the western, between the Rocky mountains and the Pacific; and the middle regions form the extensive and fertile plains watered by the Mississippi.

The western lowland of North America is remarkable for extensive forests, stretching almost to the river Columbia. The southern regions, or Upper California, is very fertile, but between it and the rocky mountains there exists an extensive plain, 700 miles in length, and from 100 to 200 or more miles in breadth. Lower California is remarkable for an arid soil, but enjoys an unrivalled sky for clearness and beauty.

Among the trees of the large forests of western North America, may be mentioned the cypress, and several species of fir, willow, and many of our domestic fruit trees. The mighty Douglas pine, here attains the height of 180 feet, and the diameter of its trunk is sometimes 10 feet. The vine is also abundantly found on the borders of some rivers. Among the animals of these regions are the lynx, fox, black bear, glutton, American rein-deer, and, the rocky mountain goat, remarkable for its long white silky hair.

The climate of western North America is milder than

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any other district of the same Continent; the vegetation consequently differs in many respects from that of the eastern or central lowlands.

Exercises.

With regard to the cardinal points, how does America chiefly extend? Its mountain ranges? The length of the great American mountain system? Under what name does this system commence at the north? Where do the rocky mountains end? Their greatest height? Describe the positions of the Great American lowlands? For what is the western lowland remarkable? Upper California? The plain between the latter and the rocky mountains? Lower California? The particular forest trees of this region? The Douglas tree? Describe the animals? The climate of the western lowland? The consequences of this difference of climate?

CHAPTER XXIII.

United States, British America.

In the vast region forming the United States, lies the great central North American low-land. In breadth, it extends from the Rocky mountains to the Alleghanies, and in length, from the Mexican gulf to the Arctic sea; but it increases greatly in breadth towards its northern portion. With the exception of the Ozark ridge, which is from 1000 to 3000 feet above the level of the sea, not a single mountain range occurs over the whole of this vast plain. The Mississippi, one of the largest rivers of the earth, flows through this territory, and seems to determine its more particular divisions. The territory, from the Alleghanies to that river, is the most fertile of the United States, but from the Mississippi to the Rocky mountains on the other hand, consists of sandy and unfruitful prairies, with here and there a few land-marks to direct the traveller in his way. It must be remarked, however, that this region is not altogether destitute of vegetation, as it possesses a zone of about 200 miles in width, which contains many large forests. The territory lying on the

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Mexican gulf is very level and swampy, as are also the districts bordering on the Atlantic. The district from the sources of the Mississippi, and the lakes of Canada to the Arctic ocean and Hudson's bay, presents no hills higher than 2000 feet above the level of the sea. The interior of this region is in many parts occupied by prairies, or savannahs, which possess but little vegetation, and are sometimes known as the barren grounds.

The Hudson's Bay territory is very flat and swampy, but the southern regions present a well wooded scenery.

British America, comprising the north-eastern portion of North America, may be considered as a continuation of the great low-lands. The surface of Upper Canada is well watered, and covered with forests of the greatest magnitude. Lower Canada again, presents picturesque scenery. These districts possess some excellent pasturage, and Nova Scotia and New Brunswick exhibit some magnificent forests.

The region of Labrador, as might be expected, presents all the appearance of an Arctic territory. Newfoundland possesses a very good soil, but the climate hinders the successful cultivation of wheat; and although situated in a lower latitude than Britain, yet, through the inclemency of the climate, its trees are of a very stunted growth.

The mineral deposits of North America are very abundant; coal is found in many parts of British America; and in the States between the Alleghanies and the Missisippi, there is a coal field 1500 miles in length, and 600 in breadth. Gold is found in North Carolina and California. Silver occurs in small quantities in parts of the United States; copper, lead, and iron, are very abundant. Garnets, sapphires, beyrl, amethysts, etc. are also found in many parts of North America.

Salt springs are very numerous in the great valley of the Mississippi.

Among the trees of North America are the pine and larch, several species of oak, poplar, walnut, sugar maple, the white cedar, the tulip tree, and the important Weymouth pine.

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In the northern and middle States, the common species of grain are successful, and rice in vast quantities is grown in most districts of the south; tobacco is also raised in great quantities in Maryland and Virginia; and in the districts of Florida and Louisiana, the sugar cane is very successful.

The animals of the New World, though generally resembling those of the Old, are found to be different in species. Those of the Arctic regions are, however, an exception. The larger animals of North America include the black bear, grizzly bear, wolf, musk ox, moose-deer, American rein-deer, and prong-horned antelope. Among the smaller animals may be mentioned the fox, otter, badger, squirrels, etc. The climate of the United States is remarkable for inconstancy, passing instantly from extreme cold to burning heat, and from the heaviest rains to withering droughts. West of the Alleghanies, the weather is however more temperate and equable, but Lower Canada is remarkable for its severe winters and warm summers.

Exercises.

Describe the locality of the North American central lowland? The greatest height of the Ozark ridge? Name the great river that flows through this lowland? Describe the district from the Alleghanies to the Mississippi? From the Mississippi to the Rocky mountains? The district of the Gulf of Mexico? The district bordering on the Atlantic? The district from the courses of the Mississippi and the Canadian lakes to the Arctic Ocean? The Hudson's bay territory? Describe the general surface of British America? Upper and Lower Canada? Nova Scotia? New Brunswick? Labrador? Newfoundland? The minerals of North America? The chief forest trees? The different kinds of grain? The chief animals? Their connexion with those of the Old Continent? The general climate of the United States? That of Lower Canada? Labrador? That west of the Alleghanies?

CHAPTER XXIV.

Physical Features of Central America, Mexico, Gautimala.

Central America, one of the three grand portions into

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which the New World has been divided, next claims our attention. This division, in its proper sense, comprises the territory lying between the narrowest part of the Isthmus of Panama, and that of the Isthmus of Tehuantepec. This territory is perhaps better known by the name of Gautimala. Mexico, formerly New Spain, with Gautimala, extends in length in a direct line over a surface of 1500 miles. This territory is traversed from north to south by the great central mountain range known in North America as the Rocky mountains, but does not in any part attain the elevation of the latter. This vast mountain system is continued in Mexico by an elevated table-land, averaging in height about 8000 feet above the level of the sea. This again is traversed from east to west by a chain of active volcanoes, some of which tower to the height of 18,000 feet. In Gautimala we find this elevated table-land retaining its height in the north-western region, but it becomes depressed in the division of Nicaragua. In the eastern part of the province of Veragua, the range is broken into separate mountains of great elevation, but of a very rugged appearance: to the east, several conical risings surrounded by plains and savannahs occur. The surface of the provinces of Darien and Choco, is for the most part flat, and contains a remarkable watershed, formed by the rivers entering the Atlantic and Pacific oceans. The Isthmus of Panama, which at its narrowest part is not more than 25 miles broad, contains mountains which attain the height of from 1000 to 1200 feet above the level of the sea, and covered in some parts with heavy forests. In the neighbourhood of Portobello, there are no less than 20 active volcanoes. The peculiar configuration of the surface of Mexico, combined with its position, causes many changes in the productions of its soil.

From the burning coasts of Vera Cruz, to Mexico the capital, which is 7000 feet above the sea, trees and plants of the Frigid, Temperate, and Torrid zones may be found. The most elevated part is altogether without vegetation, but this is not owing to its elevation, but rather to a lack

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of moisture. The tracts, bordering on the ocean, are clothed with the richest tropical vegetation.

Mexico is very rich in minerals; iron, copper, lead, and mercury, are found in many parts. Gold is also met with, but the silver mines of Mexico, about 3000 in number, are the most celebrated in the world. These mines are estimated to produce, annually, 1,500,000 lbs., which is equal to two-thirds of the silver obtained annually throughout the world. The cultivation of Mexico consists of cotton, indigo, sugar, tobacco, vines, maize, wheat (the finest in the world), barley, potatoes, and other kinds of food.

The assemblage of animals met with in several regions is very remarkable; wolves of northern appearance, in the vicinity of monkeys, and birds of northern aspect nestle with parrots; in fact, 68 species of land birds have been described as belonging to Mexico. Among the other animals, the most remarkable are the jajuar, and conguar resembling the tiger and lion. The bite of the tapir, an animal peculiar to Mexico, is said to cut through the hardest wood.

Exercises.

Name the limits of Central America proper? By what name is the territory generally known? The extent of Mexico and Gautimala? What mountain system extends through these territories? How is this mountain system continued through Mexico? The greatest height of this table-land? Describe its natural features? Its extension through Gautimala? The narrowest part of the Isthmus of Panama? The natural features of this district? The neighbourhood of Portobello? The productions of Mexico? Account for its variety of plants? The probable cause of the sterility of the surface of the more elevated parts of the table-land of Mexico? Describe the minerals of Mexico? The grain? The peculiar amalgamation of animals? The probable cause of this? Name some of the more remarkable animals?

CHAPTER XXV.

Physical features of South America.—The Andes.

South America is naturally divided into two portions, the extensive mountain system, which traverses it from

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north to south, and the immense plains occupying its eastern surface. The mighty Andes derive their name from the Peruvian word ANTI, which means copper. They stretch from the dreary regions of Terra-del-Fuego, in a connected chain, possessing numerous active volcanoes towards the northern frontiers of Columbia, from whence they are prolonged through Mexico to the great mountain system of North America, which extends to the Polar sea. Commencing with the group of Terra-del-Fuego, we find mountains of some magnitude, the summits of which are capped with perpetual snow, and yet possessing evergreen woods.

In a previous chapter, it was noticed that the snow line in the southern regions of South America lies lower than in similar latitudes in North America, but vegetation is found to thrive luxuriantly in the southern districts of the former, at the bases of mountains, two-thirds of which are covered with snow. This strange appearance has been attributed to the extreme clearness of the atmosphere of these regions. The Andes, in Patagonia, vary very much in breadth, and do not attain any great elevation; here the Pacific, by its inundations, penetrates the mountains, forming patches like so many islands, and which present very remarkable scenery; the western sides being barren and bare, while the eastern are clothed with thick woods. Towards Chili, the Andes recede from the ocean, leaving a belt of land between them and the latter, the fertility of which decreases as it approaches the Equator. In Chili, the Andes present a very striking appearance, rising in some parts almost perpendicularly to the height of 1000 feet. In places where the acclivities are less steep, the bases are covered with tall forest trees, presenting various decreasing growths, until at last perpetual snow closes the scene of all vegetation.

Passing to Bolivia, we find, for the first time, the Andes separated near Potosi, into two large parallel chains, known as the Bolivian Cordillera, or Eastern, and the Cordillera of the Coast. The greatest height of the former does not exceed 16,000 feet above the sea. In its

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northern continuation, however, the highest summits in the whole Andes occur. Here the well known Sorato, far above the line of perpetual snow, reaches the height of 25,000 feet, which may be mentioned as the highest in the New world. The Cordillera of the Coast is also remarkable for elevation and volcanic formation. These vast ranges again unite in the Andes of Cuzco, where they enclose the elevated table-land containing the remarkable lake of Titicaca.

The territory of Bolivia is in some parts greatly diversified by branches from the Andes, which enclose numerous beautiful valleys possessing a fertile soil; but the regions bordering on the Pacific are almost void of both animal and vegetable life. In Peru, we find the Andes again continued in the group of Cuzco and the mountains of Pasco, where they scarcely exceed the height of 11,000 feet above the sea. To the north of the latter mountains, the Andes again divide into three parallel ridges, of which the western alone contains any snow capped summits. The snow line lying higher towards the Equator, no peak from the last mentioned mountains, to the lofty Chimborazo, a distance of about 400 miles, reaches the limit of perpetual snow. From the Loza commence the Columbian Andes, which contain the splendid Cove of Cotopaxi. Proceeding still in the direction of the Equator, the Andes extend into two branches, between which lies the elevated table-land of Quito, sometimes called the territory of the Equator.

This region contains 16 active volcanoes, and some of the most frightful earthquakes on record have occurred here. The city of Quito, 9000 feet above the sea, is situated in a valley, which is reckoned the finest table-land in America. To the north of Quito we find the Andes divided into three ranges, the western, central, and eastern Cordilleras. The western, forming the continuation of the system of the Andes, extends unbroken, until it becomes depressed at the mouth of the river Atrato, which forms the boundary between South and Central America. The eastern Cordillera terminates the mighty Andes in the elevated Merida.

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Exercises.

Name the two great divisions into which South America is divided? Derive the word Andes? Their greatest extent? Their continuation through North America? Describe the group Terra-del-Fuego? The snow line in South America as contrasted with that of North America? Does this difference affect vegetation? What is the probable cause of the apparent vegetation of the southern regions of South America? Describe the Andes in Patagonia? In Chili? The vegetation of the Andes in these districts? The Andes in Bolivia? Name the highest summit of the Andes? For what is the Cordillera of the coast remarkable? The position of the lake of Titicaca? The vegetation of the Andes in Bolivia? The Andes in Peru? Their greatest elevation here? The Andes from the mountains of Pasco to the lofty Chimborazo? The Columbian Andes? The position of the table-land of Quito? The character of the valley in which Quito is situated? Describe the Andes north of Quito? The termination of the eastern Cordillera?

CHAPTER XXVI.

Brazil, Columbia, Guiana, Peru.

Brazil, possessed of a genial climate, a fertile soil, an abundance of wood and water, and for the richness of its minerals, may be justly considered as one of the finest countries in the world. The mountains of Brazil, although not of great elevation, are of great extent. Their greatest height does not exceed 6000 feet above the sea, and run chiefly in parallel ridges from north to south.

The scenery of the Brazilian coast is beautiful; in the valleys are found the productions of the tropical regions, as coffee, sugar, cotton, etc. The interior consists of magnificent forests, which abound in valuable trees. These forests are the abode of several wild animals, and an almost countless variety of birds.

Amongst the minerals of Brazil may be mentioned gold; iron and copper are also found in the interior; diamonds, topaz, and many other precious stones are also met with in abundance.

Guiana, situated north of Brazil, is in many parts low

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and marshy, but the mountain ranges are truly magnificent and picturesque. The Roraima is remarkable for a mural precipice of 160 feet in height, rising at its top, and the whole mountain range presents magnificent cascades, whose waters finally disappear in the Orinocoo and Amazons. Guiana, although not rich in the number of its minerals, abounds in forests, which stretch majestically to the very borders of the rivers, possessing monkeys of almost every species and other animals peculiar to the New world, as the jaguar, puma, tapir, etc.

Columbia, embracing the republics of Venezeula, New Grenada, and Quito, occupy the north-eastern frontier of South America. In Venezeula is the great river Orinocoo, and the great lakes of Maracaybo and Valencia. The northern districts of Venezeula are mountainous, but on the banks of the Orinocoo are large plains called Llanos.

The climate here is very hot, and in some parts very unhealthy. The productions comprise coffee, sugar, tobacco, etc. The plains of the Orinocoo afford excellent pasturage. New Grenada, lying west of Venezeula, is chiefly remarkable for its mineral treasures, comprising gold and silver in abundance: there are also mines of platina, lead, copper and emeralds. Quito is also remarkable for its mineral treasures, but is often visited by violent earthquakes. The fertility of some parts of Quito is almost incredible. To the south of Columbia lies the vast lowland, or basin of the Amazons. This magnificent plain slopes gradually from the foot of the Andes to the shores of the Atlantic, and is watered by the mighty Amazon and its numerous tributaries. The northern portion of this vast plain contains some valleys of great beauty and fertility, while the interior and southern regions are wholly occupied with thick forests almost unknown to the axe.

Peru is naturally divided into three regions,—Western Peru, Eastern Peru, and Peru of the Andes. Western Peru consists of a complete desert nearly 2000 miles in length, and averaging from 30 to 40 miles in breadth. Rain is unknown throughout the whole of this region,

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and vegetation is only known on the banks of the rivers. Eastern Peru, on the contrary, rivals Brazil in fertility and variety of vegetation. The mineral treasures of Peru have long been celebrated: in fact, every species of production, from those of Lapland to the spices of tropical regions, are exhibited in Peru.

Exercises.

What are the general features of Brazil? Describe its mountain ranges? Their greatest height? The scenery of the Brazilian coast? The chief productions of the valleys? Describe the interior with its peculiar animals? Its minerals? The situation of Guiana? The mountains of this region and their peculiar features? The minerals? Forests? Animals? The situation of Columbia? The republic of Venezuela? The banks of the Orinoco? The climate here? The chief productions? For what is New Grenada remarkable? Quito? Describe the vast lowland or basin of the Amazons? How is Peru naturally divided? Describe western Peru? Eastern? The vegetation of the three divisions? The mineral treasures?

CHAPTER XXVII.

Bolivia, Chili, Patagonia, and La Plata.

Bolivia for the most part situated at a great elevation, may be expected to witness a variable climate; here, snow storms and hurricanes frequently destroy the vintage of the plains, and the Potosi, which is situated at an elevation of 13,000 feet, the atmospheric changes of the four seasons of the year, are frequently witnessed in one day. In Bolivia is situated the table land of Titicaca, containing the lake of the same name, at an elevation of 12,700 feet above the level of the sea. Chili, situated between the Andes and the Pacific, is 1300 miles long, and from 30 to 120 miles broad. This territory is remarkably fertile, its southern districts abounding in valuable timber trees. The mineral treasures of Chili are both

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valuable and abundant, producing gold, silver, copper, coal, and rock-salt. To the south of Chili lies the region of Patagonia, whose interior is but little known.

The country appears to be almost destitute of any useful productions. The inhabitants here have been long celebrated for their gigantic stature, but are now little above the standard of Europeans in height, and are but very few in number. The territory of Rio-de-la-Plata is almost one extensive plain, watered by several large rivers. This plain, remarkable for its great fertility, possesses many lakes with brackish waters. Thistles, varying in size from 10 to 12 feet spring up here at particular seasons of the year, and the climate on the whole is salubrious. The plains of Rio-de-la-Plata, with other lowlands of South America, are better known by the name of PAMPAS or LLANOS, both words signifying "level:" they are in many parts marshy, and, except on the borders of rivers, usually void of trees. During the dry season they present the aspect in most parts of a parched desert, but, after the rainy season, they become covered with grass. In crossing these plains, several fertile oases occur, which seldom exceed two miles in circumference, containing trees of immense size; these, during the inundations present the appearance of little islands capped with trees.

In some of the rivers in these districts alligators are found in great numbers, and serpents abound in many parts; but Peru contains no noxious reptiles. Brazil is said to possess not less than 700 species of insects, which, for size and brilliancy, are unrivalled.

The New Shetland Isles being for the most part mountainous and covered with snow, are almost destitute of vegetation. This may be attributed to the great coldness which prevails in these districts, whose similar latitudes in North America grow almost every species of grain. To the north-east of the Shetland isles is the large island of Georgia, which chiefly consists of immense rocks of ice, and mountains of perpetual snow.

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Exercises.

Describe the atmospheric changes at Potosi? The probable cause of this? The table-land of Titicaca? The elevation of the lake Titicaca? Describe the general surface of Chili? Its greatest length and varying breadth? The southern districts of Chili? The mineral treasures? Describe the region of Patagonia? Its inhabitants? Describe the territory of Rio-de-La-Plata? By what other names are the plains of America known? The general character of these plains? Their Oases? Their peculiar animals? Does Peru contain any noxious reptiles? Is rain known in Peru? The insects of Brazil? The New Shetland Isles? The Island of Georgia?

CHAPTER XXVIII.

West India Islands.

These islands, celebrated alike for their rich productions and mountainous appearance, are situated between North and South America, presenting as it were a convex barrier to the Atlantic ocean. The exact number of these islands have not been satisfactorily ascertained, but from the fact of the Bahamas alone amounting to not less than 500, they must be very numerous. Cuba, the largest, is 700 miles in length, and 120 in breadth, and is traversed by a chain of mountains rising to the height of 8000 feet above the level of the sea. The plains stretching from the base of these mountains to the sea are remarkably fertile, producing two and three crops of grain in the course of the year. The interior of Cuba is in many parts occupied by salt lakes, which supply abundance of fish. The mines of Cuba produce gold, silver, and copper; bituminous coal has been lately discovered, and asphaltum occurs in large quantities on the shores of the Bay of Havannah, which supplies the place of tar for pitching vessels. The asphaltum, or pitch lake of Trinidad, is very remarkable; in the warm season it is almost a perfect fluid, but in the rainy or cold season, it becomes of such a consistence as to sustain any amount of pressure.

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The native animals of the West India islands are but imperfectly known; alligators, sea-cow, green turtle, and the ignuaga are, however, numerous.

The vegetable productions comprise all that is beautiful and valuable; the mahogany tree, cedar, ebony, various species of palm, the banama, climbing plants in great profusion, the maranta, which produces arrow root, and numerous spice plants. Among the fruit trees are the pine-apple, chestnut, custard apple, melon, and orange.

Jamaica, in point of size, ranks third among the West India islands; it is of an oval shape and very mountainous: the Blue mountains traverse the island from one end to the other, rising in some parts to the height of 8000 feet; the part to the south is in many places almost covered with impenetrable woods presenting the most luxuriant vegetation. The plains of Jamaica are covered with excellent pasturage and fine woods. The soil on the whole is deep and fertile, presenting in some parts a brown colour, in others yellow, and sometimes bordering on scarlet. The rivers of Jamaica are very numerous, amounting at least to 200, of which the Black river is the largest.

The West India islands, like Cuba and Jamaica, are almost all of a mountainous character, the extent of some being no more than a single mountain with its declivities and base. They are, also, for the most part of volcanic origin, examples of which have been often witnessed at the islands of St. Vincent and Gaudaloupe. The climate of these islands is about the same throughout the whole of them. In the months of April and May the vernal rains begin, and continue for about six weeks; the hot and dry season succeeds, and continues through the months of June, July, and August. The rainy and hurricane months next succeed, and last during September, October, and November. The months of December, January, February, and March, are cool and serene. The thermometer, during the summer months, generally ranges in populous districts from 89 to 90 degrees; but in higher districts it often falls as low as 44 degrees. It

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may be remarked, that the existence of the inhabitants chiefly depends on the sea and land breezes; the former blowing through the day, the latter during the night, thus

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[illegible], though [illegible] in the greatest [illegible], were however, a brave and warlike people.

In the following table may be found the chief Cities and Towns of each County of England and Wales, and their Square Miles.

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Counties.	Chief Cities, &c.	Sqr. mls.
Anglesey	Beaumaris, Holyhead	205
Bedford	Bedford, Woburn, Dunstable ..	350
Berks	Reading, Windsor, Wallingford ..	571
Brecon	Brecon, Hay, Buallt	569
Bucks	Buckingham, Aylesbury	559
Caermarthen	Caermarthen	735
Caernarvon	Caernarvon, Bangor, Conway.. ..	411
Cambridge	Cambridge, Ely, Newmarket	648
Cardigan	Cardigan, Aberystwith	510
Chester	Chester, Macclesfield, Nantwich ..	794
Cornwall	Launceston, Falmouth	1002
Cumberland	Carlisle, Whitehaven, Penrith ..	1114
Denbigh	Denbigh, Wrexham, Ruthin ..	477
Derby	Derby, Chesterfield, Bakewell ..	774
Devon	Exeter, Plymouth, Barnstaple	1945
Dorset	Dorchester, Poole, Shaftesbury ..	760
Durham	Durham, Sunderland, Stockton ..	894
Essex	Chelmsford, Colchester, Harwich ..	1155
Flint	Holywell, St. Asaph, Flint	184
Glamorgan	Cardiff, Swansea, Llandaff	897
Gloucester	Gloucester, Bristol, Cheltenham ..	947
Hereford	Hereford, Leominster	649
Hertford	Hertford, St. Albans	498
Huntingdon	Huntingdon, St. Ives...	279
Kent	Canterbury, Maidstone, Chatham ..	1180
Lancaster	Lancaster, Manchester, Liverpool ..	1381
Leicester	Leicester, Loughborough	607
Lincoln	Lincoln, Boston, Stamford	2073
Merioneth	Dolgelly, Bala	500
Middlesex	London, Westminster, Brentford ..	213
Monmouth	Monmouth, Chepstow, Abergavenny ..	376
Montgomery	Montgomery, Pool	633
Norfolk	Norwich, Lynn, Yarmouth	1578
Northampton	Northampton, Peterborough	766
Northumberland ..	Newcastle, Berwick, Tynemouth ..	1411
Nottingham	Nottingham, Newark, Southwell ..	631
Oxford	Oxford, Woodstock, Witney	567
Pembroke	Pembroke, St. David's, Haverfordwest..	460
Radnor	Radnor	331
Rutland	Oakham, Uppingham	152
Salop or Shropshire ..	Shrewsbury, Wenlock, Ludlow ..	1010
Somerset	Wells, Bath, Taunton	1389
Southampton or Hamps.	Southampton, Portsmouth, Winchester	1898
Stafford	Stafford, Wolverhampton, Lichfield ..	886
Suffolk	Ipswich, Bury St. Edmunds	1140
Surrey	Southwark, Guildford, Kingston ..	592
Sussex	Chichester, Hastings, Brighton ..	1103
Warwick	Warwick, Birmingham, Coventry ..	680
Westmoreland	Appleby, Kendal	575
Wilts	Salisbury, Devizes, Marlborough ..	1040
Worcester	Worcester, Dudley, Kidderminster ..	549
York	York, Leeds, Kingston, Sheffield	4409

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Islands.	Capes.	Bays.	Rivers.
Anglesey	Flamborough Head,	Robin Hood's Bay,	Tweed, Tyne,
Man	and Spurn Head.	Bridlington Bay,	Wear, Tees,
Wight	North & South	Humber Mouth,	Trent, Humber,
Guernsey	Forelands,	The Wash, Yar-	Ouse, Witham,
Jersey	Dungeness,	mouth Roads,	Welland, Great
Alderney	Beechy Head	The Downs,	Ouse, Thames,
Sark	Needles, Start Point,	Straits of Dover,	Medway, Mersey
Sheppy Island	Lizard Point.	Cardigan Bay,	Dee, Ribble,
Thanet	Land's End,	Milford Haven,	Eden, Severn,
Coquet	St. David's Head,	Menai Strait,	Wye, Avon,
Lindisfarne	Holyhead,	The Nore,	South Avon,
Scilly Islands	Great Orme's Head,	Mouth of the	Wey. Exe,
	St. Bee's Head,	Thames,	Plym &c.

London, the capital of the British Empire, is the first, richest, and by far the noblest city in the world. It was known as the capital of the Trinobantes 54 years B. C., and was spoken of by Tacitus as a large and commercial place in the reign of the Roman Emperor Nero. It is now upwards of seven miles in length, by six in breadth, and divided into three parts, viz.—the City, in which the commerce is chiefly executed; Westminster, the seat of the Court and Parliament; and Southwark, a densely populated district south of the Thames. The churches, monuments, bridges, and other public buildings of London are very numerous and magnificent. The population is above 2 millions.

The principal ports of England are Liverpool, (which for commerce and wealth rank next to London,) Bristol, Portsmouth, Plymouth, Chatham, Dover, Falmouth, Stockton, Kingston upon Hull, Holyhead, and Lynn-Regis. The Cinque-ports are Dover, Hastings, Romney, Rye, and Sandwich.

The manufactures of England and Wales, which may be said to be superior to those of all other countries, are sent almost to every part of the globe. The chief manufacturing towns, and for what remarkable, are as follows:—London, various; Birmingham, Wolverhampton, and Sheffield, for cutlery and hardware; Manchester, Macclesfield, and Stockport for cotton goods; Derby, silk goods; Leeds, broad cloths; Northampton, shoes; Leicester and Nottingham, hosiery and lace; Coventry, ribbons; Norwich, crapes and woollen stuffs; Staffordshire and Worcestershire, china and earthenware; Kidderminster and Wilton, carpets; Penzance and Truro, tin and copper; Shields and Sunderland, coals; as also Derbyshire, Leicestershire, and part of Staffordshire; Witney, blankets; Kent, Sussex, Worcestershire, and Herefordshire, hops and cider; Hertfordshire, malt and straw goods; Cheshire, salt, etc.

The watering places of England are of great importance and very numerous; the principal are Brighton, (said to contain 75,000 inhabitants,) Hastings, Dover, Margate, Ramsgate, the Isle of Wight,

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Yarmouth, Scarborough, Southampton, etc. etc. Tunbridge, Matlock, Buxton, Cheltenham, Harrowgate, Bath, Bristol, Ashby-de-la Zouch, and many others, are celebrated for their mineral waters.

The agricultural counties of England, are Kent, Suffolk, Essex, Hampshire, Norfolk, Berkshire, Bedfordshire, Surry, Sussex, Hertfordshire, Durham, Northumberland, and Lincolnshire.

The four English Universities are Oxford, Cambridge, London, and Durham; there are many Royal Foundations, and public Schools for the instruction of youth.

The Hospitals, alms-houses, and other numerous charities of this mighty kingdom, are the greatest credit to the country, and the admiration of the world: we will only mention two asylums, those of Greenwich and Chelsea.

The magnificent residences of Royalty, and princely mansions of the nobility, which are thickly studded through the length and breadth of the land, deserve especial notice. It is but justly due to England to mention her stupendous works of art, but chiefly such as have been constructed within the present century. By the mighty aid of that monarch of power, the steam engine, what has been accomplished for England? Shores far distant, as America, are now by its powerful influence reached in a comparatively short time. The Railroads of England again afford us another proof of its power: since their formation, we are, through its instrumentality, enabled to travel at any pace under 70 miles an hour. The great trunk lines of Railway in England are the London and North Western, Eastern Counties, and North Eastern, London and Brighton, Great Western, South Western, Caledonian, and Great Northern; from these diverge many hundred miles of lesser ones to nearly every town in the kingdom. The electric telegraph, another wonder of our time, by which our messages are sent with the lightning and as it were with the swiftness of light.

The principal Canals in England are the Grand Trunk, the Duke of Bridgewater's, the Grand Junction, the Rochdale, the Lancaster, the Leeds and Liverpool, the Oxford, the Kennet and Avon, etc.

The National form of religion in England and Wales is Protestant Episcopacy, under the government of two Archbishops, and 25 Bishops; consisting of two provinces, Canterbury and York, of which 22 belong to Canterbury, and 3 to York. It is necessary to notice that they are all Peers, excepting the Bishop of Sodar and Man, (who is nominated by the Duke of Athol and not by Her Majesty,) and the Junior Bishop.

The English Bishoprics are as follows:—

Archbishops.—Canterbury, York.

BISHOPS.

London	St. Asaph
Durham	Bangor
Winchester	Carlisle
Lincoln	Rochester

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Llandaff	Peterborough
Chester	Worcester
Bath & Wells	St. David's
Gloucester & Bristol	Chichester
Exeter	Lichfield
Ripon (1836)	Ely
Salisbury	Oxford
Norwich	Sodor & Man
Hereford	Manchester (1848)

The other dignitaries of the Church are Deans, who chiefly preside over Cathedrals, assisted by Canons, Minor Canons, and Prebends. There are also Archdeacons, (who induct into benefices and reform slight abuses,) Rural-Deans, Rectors, Vicars, and Curates.

The government of England is a limited monarchy. The executive power is vested in the Monarch. The legislative belongs in part to the latter and the people: the Monarch has the power of convening, adjourning, and dissolving the Parliament, also of preventing any bill from passing into a law: appoints the great officers of Church and State, confers titles and dignities, can pardon criminals, declare war, make peace, can form treatises and alliances, has the supreme charge of the army and navy, and is the temporal head of the Church, but it is necessary that the Monarch profess the National religion.

The legislative power belongs to the Parliament, which consists of the Monarch, the Peers, and Commons. These are divided into two bodies, called the House of Lords and the House of Commons. The House of Lords consists of the Archbishops and Bishops, with the hereditary nobility. The House of Commons consists of members elected by the Counties, Cities, and Boroughs of England and Wales, Scotland, and Ireland, who number in all 658, viz. England and Wales, 500; Scotland, 53; and Ireland, 105. The chief privileges of the Commons are levying money, and imposing taxes for public purposes. The parliament is in fact unlimited in power, and can alter the whole constitution of the Empire. A bill may be introduced in either House, except bills of taxation, which must come from the House of Commons; but before it pass into a law, it must have a majority in both Houses, together with the Royal Assent, given either in person or by commission. A Parliament may sit for seven years, when a new one must be made. Peers have the privilege of voting by proxy if they prefer it.

Scotland.

Scotland, the great northern portion of the island of Great Britain, extends from 54 degrees, 40 minutes, to 58 degrees 42 minutes N. lat. and from 1 degree, 48 minutes, to 6 degrees, 5 minutes W.

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long. This country was called by the Romans Britannia Barbara, on account of the uncivilized state of its inhabitants, the most ancient of whom appear to have been the Caledonians and Picts, branches of the Celtic family who passed over from Gaul.

The first Caledonian Monarchy is said to have been founded by Fergus the first, B.C. 330. This was overturned A.D. 306. by the Scutylis or Scots, who drove the Picts and Caledonians into the north or Highlands, and settled themselves in the Lowlands; hence the remarkable difference between the Highlanders and the inhabitants of the Lowlands, or southern borders. The appellation, Scotland, was given to this country by Kenneth the Second, A.D. 842.

Scotland, with the Western, Orkney, and Shetland isles, (300 in number) is now divided into 33 counties or shires. In the following table may be seen the square miles, chief cities, and towns of each County.

Counties.	Chief Towns.	Sqr. mls.
Aberdeen	Aberdeen, Peterhead	1480
Argyll	Inverary, Campbeltown	2290
Ayr	Ayr, Kilmarnock, Irvine	810
Banff	Banff, Cullen	590
Berwick	Greenlaw, Dunse, Lauder	377
Bute	Rothsay	176
Caithness	Wick, Thurso	540
Clackmannan	Clackmannan, Alva	40
Dumbarton	Dumbarton	270
Dumfries	Dumfries, Annan, Moffat	192
Edinburgh (or Mid-Lothian)	Edinburgh, Leith	286
Elgin (or Murray) ..	Elgin, Forres	458
Fife	St. Andrews, Cupar	370
Forfar (or Angus) ..	Forfar, Dundee, Montrose	728
Haddington (or East Lothian)	Haddington, Dunbar	235
Inverness	Inverness	3370
Kincardine	Bervie, Fetteresso, Kincardine ..	300
Kinross	Kinross	62
Kirkcudbright	Kirkcudbright, New Galloway ..	676
Lanark	Lanark, Glasgow, Hamilton	682
Linlithgow (or West Lothian)	Linlithgow, Borrowstowness	87
Nairn	Nairn	118
Orkney and Shetland ..	Kirkwall, Lerwick	1254
Peebles	Peebles	230
Perth	Perth, Dunkeld, Abernethy	1865
Renfrew	Renfrew, Paisley, Greenock	193
Ross and Cromarty ..	Tain, Dingwall, Cromarty	2315
Roxburgh	Jedburgh, Kelso	577
Selkirk	Selkirk	205
Stirling	Stirling, Falkirk	550
Sutherland	Dornoch	1585
Wigton	Wigton, Stranraer	500

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Islands.	Capes.	Bays.	Rivers.
The principal of the Shetland Isles are Mainland and Yell. Of the Orkneys, the chief are Pomona and Hoy. Of the Hebrides, or Western Isles, the chief are Lewis, Skye, Mull and Jura; Bute, Arran.	St. Abb's Head Fifeness, Kinnaird's Head Dunnet Head Cape Wrath Point of Ardnamurchan Butt of Lewes Mull of Cantyre Mull of Galloway Burrow Head	Wigton & Glenluce Bays Pentland Dornoch & Moray Friths Friths of Tay, Forth, Solway, Clyde Sounds of Isla, Jura, & Mull Lochs Ryan, Fyne, Etive, and Long.	Tweed, Spey, Clyde, Tevlot, Erne, Forth, Findhorn, Deveron, Nith, Ken, Arran, Dee, Don, Tay, Ayr.

Edinburgh, the metropolis of Scotland, is situated on 3 risings, two miles from the Frith of Forth, and having for its port the town of Leith. Its early history is not authentic, but its Castle is said to have been built by Camelon, King of the Picts, B.C. 330.

Edinburgh, consists of two parts, the Old and New town; the latter is considered the most elegant and regular built of any city in Britain. Population, 132,977.

The principal seaport of Scotland is Greenock, and the chief manufacturing towns are Glasgow, Paisley, Edinburgh, Leith, Dunbarton, Aberdeen, Dundee, Carron, and Dunfermline; the latter is noted for damasks and fine linen. It should be remembered, that since the union of Scotland with England, A.D. 1707, the national prosperity of the former has made rapid progress.

The Universities of Scotland are at Edinburgh, Glasgow, New Aberdeen, Old Aberdeen, and St. Andrews. The National religion of Scotland is Presbyterianism, which was established at the Revolution of 1688. The form of government in Scotland has been nearly the same with that of England since the accession of James the first, A.D. 1603, to the English throne.

Ireland.

Ireland extends from 51 degrees, 20 minutes, to 55 degrees, 23 minutes N. lat.; and from 5 degrees, 20 minutes, to 10 degrees, 20 minutes W. lon. With regard to the exact time this island became peopled, has long been a disputed point among historians; but in all probability the first colonists were Phœnicians. About 2048 years B.C. the Partholani landed in Ireland. The descent of the Damnonii was made about 1468 B.C. and was followed by that of the Milesian Princes, Heber and Heremon, from Galicia, in Spain, who completely conquered Ireland, and gave to its throne a long race of kings. It is necessary to notice, that the authenticity of the history

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Dublin, the metropolis of Ireland, is for extent, population, beauty of its public buildings, and the delightful scenery of the surrounding country, one of the most beautiful cities in Europe, and second in the British isles. This city, anciently called Aschcled, was built A.D. 140., and the foundation stone of its castle was laid A.D. 1205. Its population in 1841 amounted to 287,000.

The other large commercial towns of Ireland are Cork, which is considered the second city of Ireland, Belfast, the most noted for commerce and literature, Limerick, Waterford, Londonderry; Drogheda and Galway are large sea ports; and Armagh and Kilkenny are the most important inland cities.

The national religion of Ireland is the same as that of England, and is under the government of two Archbishops and 12 Bishops, but by far the greater number of the inhabitants profess the Roman Catholic faith. It is a fact worthy of notice, that religious creeds of every denomination are tolerated in the British isles. The laws of Ireland, since the year 1800, are the same as England.

There is but one University in Ireland, viz.—that of Trinity College, Dublin, founded by Queen Elizabeth, A.D. 1591.

Colonies.

A table of the British Colonies, with the year in which each was captured, settled, or ceded.

Colonies.	Date.
Antigua, Settlement	1632
Anguilla, Settlement	1666
Barbadoes, Settlement	1605
Bahama Islands, Settlement	1629
Bengal, taken by Colonel Clive	1757
Berbice, Capitulation	1803
Bermudas, Settlement	1609
Bombay, Ceded by Portugal as a marriage portion with Catherine, Wife of Charles II.	1661
Canada, Lower, Capitulation	1759
Canada, Upper, Capitulation	1760
Cape Breton, Settlement	1584
Cape Coast, by Cession	1672
Cape of Good Hope, Capitulation	1806
Ceylon, Capitulation	1795
Demarara and Essequibo, Capitulation	1803
Dominica, Ceded by France	1763
Gambia, Settlement	1631
Gibraltar, Capitulation	1704
Goza, Capitulation	1800
Grenada, Ceded by France	1763
Honduras, by Treaty	1670
Jamaica, Capitulation	1665

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Colonies.	Date.
Madras, Ceded by the French	1749
Malta, Capitulation	1800
Mauritius, Capitulation	1810
Monserat, Settlement	1632
Nevis, Settlement	1628
New Brunswick, Settlement	1699
Newfoundland, Settlement	1500
New South Wales, Settlement	1787
Nova Scotia, Settlement	1622
Prince Edward's Island, Capitulated	1745
Prince of Wales' Island, Settlement	1786
Sierra Leone, Settlement	1787
St. Christopher's, Settlement	1623
St. Helena, Capitulated	1600
St. Lucia, Capitulated	1803
St. Vincent, Ceded by France	1763
Swan River, Settlement	1829
Tobago, Ceded by France	1763
Tortola, Settlement	1666
Trinidad, Capitulation	1797
Van Diemen's Land, Settlement	1803

France.

France extends from 42 degrees, 20 minutes, to 51 degrees, 5 minutes, N. lat., and from 4 degrees, 49 minutes W., to 8 degrees, 16 minutes, E. long. This country was known to the Romans by the name of Gaul; but, on the decline of the Roman power, it was conquered (about A.D. 420,) by the Franks, a people who inhabited the country now known as Franconia, and who gave the kingdom its present appellation. France was formerly divided into 35 provinces, but since the memorable revolution of 1789, it has been divided into departments, amounting in number with Corsica to 86. The departments are remarkably similar in size, and their chief towns generally central.

Provinces.			
Flanders	Poitou	Bourbonnois	Foix
Artois	Brittany	La Marche	Roussillon
Picardy	Aunis	Limousin	Guienne
Normandy	Saintonge	Auvergne	Gasceny
Isle of France	Angoumois	Alsace	Bearn
Champagne	Orleanois	Franche Comte	Avignon
Lorraine	Touraine	Burgundy	Provence
Maine	Berry	Lyonnois	Languedoc
Anjou	Nivernois	Dauphiny	

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Islands.	Capes.	Rivers.	Foreign Possessions.
Corsica Belle-isle Usbant The Isles of Rhe Hieres, and Claron	La Hogue & Harfleur	Rhone Loire Seine Rhine Garonne and Meuse	In Asia—Chandernagore Pondicherry, Isle of Bourbon, The Marquesas In Africa—Algiers, Senegal, and the Isle of Goree In South America—Cayenne, and In the West Indies— Martinique, Gaudaloupe.

Paris, the metropolis of France, at the time of the Roman invasion was no more than a poor township, but it was afterwards called the city of Parisii A.D. 380; and subsequently fixed upon by Clovis the Great as the Capital of his States, A.D. 507. It is now considered, for size and beauty, the second city of Europe. Population, last census taken, 912,033.

The second city of France is Lyons, which is beautifully situated on the confluence of the Rhone and Seine, and is greatly distinguished for its manufactories of silk, etc. Marseilles, a flourishing sea-port on the Mediterranean, was founded by the Phœnicians 53 years B.C. Amiens is remarkable for the treaty of peace made there between England and France, A.D. 1802. Bordeaux is one of the most elegant cities of France; it chiefly exports wines, brandies, and fruits. Brest is the chief naval station on the Atlantic, and Toulon on the Mediterranean. Calais and Boulogne are the chief landing places from England. The former was in the possession of the English for more than 200 years, but was lost in the reign of Queen Mary A.D. 1558. The national religion of France is Roman Catholic, but all others are tolerated.

The government is Republican. Louis Napoleon Bounaparte was chosen President, December the 20th, 1848. The Protestant inhabitants of France are now nearly 5 millions. France possesses two protestant seminaries for studying divinity, one at Strasburg, and the other at Montauban.

Spain.

Spain, anciently known as Hispania, and Iberia, is supposed to have been first peopled by the Iberians, an Asiatic tribe. At the time of the Roman Invasion, the greater part of the kingdom was in the possession of the Carthaginians, whom the Romans drove from the kingdom, and converted it into a Roman province A.D. 477. It

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was afterwards taken possession of by the Western Goths, who in turn were conquered by the Saracens and Moors, A.D. 713. The latter and their descendants held the best parts of the kingdom for nearly 800 years, when they were conquered and driven from the kingdom by Ferdinand and Isabella, A.D. 1492.

Spain is now divided into 14 provinces, which are subdivided into 49 smaller provinces.

Provinces.	Chief Towns.
Galicia	Santaigo, Corunna, Vigo, Ferrol
Biscay	Bilboa, St. Sebastian, Vittoria
Navarre	Pampeluna, Tudela
Asturias	Oviedo, Santander
Arragon	Saragossa, Terruel
Catalonia	Barcelona, Tarragona, Tortosa
Murcia	Murcia, Carthagena
Valencia	Valencia, Alicant
Leon	Leon, Astorga, Salamanca, Valladolid
Old Castile	Burgos
New Castile	Madrid, Toledo, Talavera
Granada	Grenada, Malaga
Estremadura	Badajos, Merida
Andalusia	Seville, Cadiz, Cordova, Xeres

Islands.	Capes.	Rivers.	Foreign Possessions.
The Balearic Isles	Ortegal	Douro	Cuba and Porto Rico in the West Indies, and the greatest number of the Philippine Isles in the Indian Archipelago.
Minorca	Finisterre	Minho	
Majorca	Trafalgar	Tagus	
Iviza and the Canary Islands	De Gata	Gaudiana	
Santa Cruz is the capital of the latter	Palos	Guadalquiver	
	St. Martin	Ebro	
	St. Creux	Segura	

Madrid, the metropolis of Spain, is situated nearly in the middle of the kingdom, on several eminences, at the height of 2200 feet above the level of the sea; being the most elevated city in Europe.

Madrid is a handsome city of an oblong form, and about 6 miles in circuit. It was made the seat of the Spanish Court A.D. 1516, prior to which time it was but of little importance. Its population is estimated at 210,000.

Barcelona, on the Mediterranean, is considered the second city of Spain for population and commerce, and the chief for manufactures. Carthagena, on the same sea, said to have been built by Asdrubal the Carthagenian, is a flourishing sea-port. Seville, the ancient capital of Spain, is a flourishing and handsome city; its cathedral is one of

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the largest in Europe. Corunna, the chief packet station for England, is noted for the defeat which the French suffered from the British in the action under the command of Sir John Moore, A.D. 1809. Ferrol is the great naval station of the kingdom, and is situated about 12 miles to the N. E. of Corunna, possessing a harbour, which is unequalled by any in Europe for extent and shelter. To the south of Spain lies Gibraltar, a remarkable fortress, which was taken by Sir Geo. Rooke, an English general, A.D. 1704, and to which nation it still belongs. Cadiz is an important commercial city, and the chief station of the Spanish navy.

The government of Spain is monarchical, which was at one time limited, and is still in a small degree somewhat controlled by the Church. The heir apparent to the Crown is styled Prince of the Asturias, the other princes of the Royal family are styled Infants, and the Princesses are styled Infantas.

The national religion of Spain is the Roman Catholic, which is under the government of 8 Archbishops and 40 Bishops. No other sect is tolerated by law. There are eleven Universities in Spain, few of which are well attended.

Portugal.

Portugal extends from 6 degrees, 20 minutes, to 9 degrees, 30 minutes W. long., and from 36 degrees, 58 minutes, to 42 degrees, 10 minutes N. lat. The ancient name of Portugal was Lausitania. Its present name is taken from an ancient town near Oporto, called Calle, to which the term Port has been annexed, literally meaning the Port of the West.

Provinces.	Chief Towns.
Entre Douroe Minho ..	Oporto, Braga
Tras-os-Montes ..	Braganza, Miranda
Beira	Coimbra, Castelbranco
Estremadura	Lisbon, Setuval, Santarem
Alentejo . ..	Evora, Elvas
Algarve	Faro, Lagos, Tavira

Capes.	Rivers.	Foreign Possessions.
The Rock of Lisbon	Douro	In Africa, the Azores, the
St. Vincent	Minho	Cape Verde Islands,
St. Maria Espchel	Tagus	Madeira, Angola,
	Mondego	Mozambique. In Asia,
	Gaudiana	Goa and Macao, near
	Saado	Canton.

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Lisbon, the metropolis of Portugal, is said to have received the name of Lisboa from the Moors, who conquered it A.D. 716. It was afterwards made the capital of the kingdom by Emmanuel, A.D. 1596. This city being built on several eminences, in the shape of a half moon, presents to the bay a beautiful appearance. The population amounts to 260,000.

The national religion of Portugal is Roman Catholic, and the government is an hereditary Monarchy, the legislative and executive authority being vested in the reigning Sovereign. Portugal may be said to have been in some measure in alliance with England, since Charles II. married a Portuguese Princess.

Switzerland.

Switzerland extends from 45 deg., 50 min., to 47 deg., 46 min. N. lat. and from 6 deg., 5 min., to 10 deg., 31 min., E. lon. This country, anciently called Helvetia, consists of 22 Cantons, which united, form the Swiss Confederation.

Cantons.	Chief Towns.	Cantons.	Chief Towns.
Thurgau ..	Frauenfeld	Appenzell ...	Appenzell
Schaffhausen ..	Schaffhausen	Glarus ..	Glarus
Zurich ..	Zurich	Uri	Altorf
Argovia ..	Aarau	Unterwalden ..	Stantz
Basle	Basle	Friburg ..	Friburg
Berne	Berne	Neufchatel ..	Neufchatel
Soleure ..	Soleure	Pays-de-Vaud ..	Lausanne
Lucerne ..	Lucerne	Geneva ...	Geneva
Zug	Zug	Valais ..	Sion
Schweitz ..	Schweitz	Tessino ..	Lugano
St. Gall ..	St. Gall	Grison ..	Coire

Rivers—Rhone, Rhine, Aar, Reuss, Ticino, Inn.

Berne, the metropolis of Switzerland, was made an Imperial city A. D. 1290. It contains a College, and is in rotation with Lucerne and Zurich, the seat of the diet: it is also the birth-place of the celebrated Haller. Population, 21,000.

Geneva is a beautiful city, situated on the outlet of the Rhone from the lake, and is remarkable as the long residence of the Reformer Calvin: it is also the seat of a Protestant University. The most commercial towns of Switzerland are Basle and Zurich.

In seven of the Cantons the Protestant religion is professed; in eight, the Roman Catholic; and in the remaining seven, there is a mixture of both.

The form of government is Republican, as settled by the Congress of Vienna in 1815.

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Italy.

Italy extends from 37 deg., 55 min., to 46 deg., 40 min. N. lat.; and from 5 deg., 40 min., to 18 deg., 30 min. E. long. Italy may be justly called the garden of Europe. It received its name from Italus, a king of the country. The first inhabitants were the progeny of Meshech, sixth son of Japheth. Subsequently the Gomerites, or Celts of Gaul, and others from Greece, sent Colonies to Italy, by which the country became divided into three grand parts, the original inhabitants possessing the division called Italia Proper. The whole kingdom was however subdued by the Goths and Lombards, and Rome taken and plundered by the Visigoths, A.D. 410.

Italy is now divided into the following Independent States.

States.	Chief Towns.
Austrian Italy.	
Milan	Milan, Mantua, Cremona, Pavia
Venice	Venice, Verona, Padua
Kingdom of Sardinia.	
Savoy	Chamberry
Piedmont	Turin, Nice, Alessandria
Genoa	Genoa, Savona
Island of Sardinia	Cagliari, Sassari
States of the Church. ..	Rome, Bologna, Ferrara, Ancona
Tuscany	Florence, Leghorn, Pisa, Sienna
Lucca	Lucca
Modena	Modena, Massa, Reggio
Parma	Parma, Piacenza
Prin. of Monaco	Monaco
Rep of San Marino... ..	St. Marino
Kingdom of Naples.	
Naples	Naples, Barri, Reggio, Taranto, Gaeta
Sicily	Palermo, Messina, Syracuse

Islands.	Capes.	Gulfs.	Rivers.
Sicily	Spartivento	Venice	Po, Adige, Arno,
Sardinia	Passaro	Salerno, Genoa	Tiber, Ticino,
Corsica	Leuca	Taranto, &c.	Volturno
Elba	Colonne		
Lepari Isles			

Rome, the metropolis of the States of the Church, was once the mistress of the World, and subsequently the seat of the most extensive Ecclesiastical government in the world: It was founded by Romulus, 753 years B.C.; and is said to occupy the site of 7 hills. No city in the world can vie with Rome in the number and beauty of its churches. Its population is 154,000.

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Naples is the largest city in Italy, and for situation and appearance is unrivalled. Genoa, a strong commercial sea port, is remarkable as being the birth-place of Christopher Columbus. Leghorn is a flourishing sea-port, and the first commercial city of Italy. Florence is celebrated for its seats of science and art; its collection of paintings and statues in the Florentine gallery is the finest in the world. Turin is particularly noted for its silk manufactures. Milan is a beautiful city, and its cathedral of white marble is one of the most splendid in the world. Venice is a magnificent city, built on a number of islands connected by several bridges, presenting at a distance the appearance of churches, palaces, etc. floating on water.

The government of all the States is generally absolute, and the established religion Roman Catholic; all other sects are tolerated, provided the National religion be duly honoured.

Holland.

Holland extends from 51 deg., 12 min., to 53 deg., 30 min. N. lat.; and from 3 deg., 20 min., to 7 deg., 12 min. E. long. This country was originally inhabited by the Batavii, who derived their origin from the Catti, a people of Germany. A sovereignty, founded by Thierry the first Count of Holland, A.D. 868. but was separated from Belgium in 1831. The appellation Holland is from the German word hohl, meaning hollow.

Provinces.	Chief Towns.
North Brabant.. ..	Bois-le-Duc, Breda, Bergen-op-Zoom
North Holland... ..	Amsterdam, Haarlem, Leyden, Hoorn
Guelderland	Arnheim, Nimeguen, Zutphen
South Holland.. ..	The Hague, Rotterdam, Delft, Dort
Zealand	Middleburg, Flushing, Campvere
Friesland	Leeuwarden
Utrecht	Utrecht
Overyssel	Zwoll, Deventer
Groningen	Groningen
Drenthe	Assen
G. Duchy of Luxemburg	Luxemburg

Islands.	Bays.	Rivers.	Foreign Possessions.
Walcheren	Zuyder Zee	The Rhine	Java, Moluccas, or Spice Islands
North Beveland	Haarlem Meer	The Meuse and the Uaal, Yssel and Leck branches of the Rhine	In the W. Indies, Curacoa, Buen, Ayre, St. Eustatius
South Beveland	Dollart Bay		In S. America, Surinam
Tholen	Lauwer Zee		In Africa, El Mina, with a few small forts in Guinea
Over Flakkee			
Texel Vlieland			
Schelling			
Ameland			

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Amsterdam, the metropolis of Holland, is next to London the most commercial city in the world, and was built A.D. 1203; its position is very marshy, the houses being built on piles of timber driven into the earth. Population, 220,000.

Rotterdam ranks next to Amsterdam, and was the birth-place of the learned Erasmus. The Hague is a beautiful city, and the seat of the Court, a little to the north of which stands the rural palace of the royal family.

The national religion of Holland is Calvinistic, but all other sects are tolerated, and all ministers, whether Dissenting or Calvinistic, receive payment from the public treasury.

The government is like England, a limited hereditary monarchy, and closely resembles the latter in its constitution. There are 3 Universities in Holland, viz. Leyden, Utrecht, and Groningen. There are also other large seminaries called Athenæa, which are less expensive and afford a first-rate education, but confer no degrees.

Belgium.

Belgium extends from 49 deg., 50 min., to 51 deg., 30 min. N. lat.; and from 2 deg., 40 min., to 6 deg., 15 min., E. lon. This country, late the southern part of the kingdom of the Netherlands, was the ancient territory of the Belgæ, who were conquered by Julius Cæsar, B.C. 47. Formed into a kingdom, A.D. 1831, with Leopold, Prince of Saxe Coburg elected as its king.

Provinces.	Chief Towns.
Antwerp	Antwerp, Mechlin
South Brabant... ..	Brussels, Louvain, Tirlemont
East Flanders	Ghent, Alost, Oudenarde
West Flanders	Bruges, Ostend, Courtray, Ypres
Hainault	Mons, Tournay
Liege	Liege, Verviers, Spa
Namur	Namur, Charleroi
Belgian Luxemburg ..	Arlon, Bastogne
Belgian Limburg ..	Hasselt, St. Tron, Tongres

Rivers—The Scheldt and tributaries Lys and Haine, the Meuse.

Brussels, the metropolis of Belgium, was founded by Gery, Bishop of Cambray, in the seventh century. It is now one of the most beautiful cities of Europe, and famous for its manufactures of lace and carpets. Population, 106,000.

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Antwerp, formerly the first city in Europe for commerce, is the most commercial in Belgium, and its beautiful gothic cathedral is adorned by the paintings of Rubens. The other commercial towns of Belgium are Ghent, Bruges, Mons, and Liege. The chief seaport is that of Ostend; Waterloo, a small village about 10 miles to the south of Brussels, has been rendered memorable as the place where the Duke of Wellington defeated Napolean Bounaparte, A.D. 1815.

The established religion of Belgium is the Roman Catholic, but all other sects are tolerated. The government resembles in most respects that of Great Britain. There are 3 Universities in Belgium, viz., Louvain, Ghent, and Liege.

Prussia.

Prussia extends from 49 deg., 8 min., to 55 deg., 50 min. N. lat.; and from 6 deg. to 22 deg., 50 min. E. lon. This country was possessed by the Venedi, B.C. 320., but the inhabitants were but little known till A.D. 1007. The appellation Prussia, is supposed to be derived from Po, meaning near, and Russia, easily changed to Prussia. Frederick William the Great, Elector, compelled Poland to recognise Prussia as an Independent state, A.D. 1657, and his son Frederick, in an assembly of the States, put a crown upon his own head, and upon that of his consort, and proclaimed King of Prussia as Frederick the first. Prussia is now known as one of the five great powers of Europe.

Provinces.	Chief Towns.
East Prussia	Konigsberg
West Prussia	Dantzic
Brandenburg .. .	Berlin
Posen	Posen
Pomerania	Stettin
Silesia	Breslau
Prussian Saxony ..	Magdeburg
Westphalia	Munster
Rhenis Prussia.. ..	Cologne
Neufchatel in Switzerland	Neufchatel

Islands	Rivers.	Gulfs.
Rugen in the Baltic	Rhine	Dantzic
	Elbe	Curische-Haff
	Weser	Gross-Haff
	Vistula	Frische-Haff
	Oder	
	Niemen or Memel	

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Berlin, the metropolis of Prussia, was founded by the Margrave Albert, surnamed the Bear, A.D. 1163, and was first united under one Magistrate, A.D. 1714. This city, situated nearly in the centre of the kingdom, is one of the most beautiful cities in Europe; its population is 270,000. Dantzic is an important commercial city, about 4 miles from the mouth of the Vistula. Potsdam, about 15 miles from Berlin, is occasionally the residence of the Prussian Court. Magdeburg, on both sides of the Elbe, is one of the strongest fortresses in Europe. Cologne, from its situation, forms the chief medium of intercourse between the Netherlands and Germany. The chief sea-ports of Prussia are Dantzic, Konigsberg, Stettin, Colberg, and Memel. The town of Thorn, in West Prussia, is noted as being the birth-place of Copernicus, the celebrated astronomer, and Wittenburg possesses interest as containing the tombs of the Reformers Luther and Melancthon. Aix-la Chapelle, celebrated for its baths, was the favourite residence of Charlemagne and his successors.

The National religion of Prussia is Calvinistic and Lutheran Protestantism, but all other sects are tolerated, and equally eligible to situations of trust.

The government is an hereditary monarchy and almost absolute. There are 7 Universities in Prussia, viz., Berlin (founded 1812), Breslau, Halle, Bonn, Konigsberg, Munster, and Griefswald.

The National system of Education in Prussia is so complete and well organized, that the whole of the inhabitants may be said to be educated; in fact, they are all compelled to learn.

Austrian Empire.

This extensive empire extends from 44 deg. to 51 deg. N. lat., and from 8 deg., 30 min., to 26 deg., 30 min. E. lon. Austria, at one time the Belgic Gaul of the Romans, was taken from Hungary and joined to Germany, about A.D. 1040, when it received its present name. It became an Empire in 1804; Francis, the second Emperior of Germany having resigned the latter title, was crowned Emperor of Austria, A.D. 1806. The dominions of Austria, enlarged by many acquisitions, comprise the kingdoms of Bohemia, Hungary, and Lombardy; the provinces of Galicia, Moravia, Tyrol, Carinthia, Styria, Sclavonia, Croatia, and Dalmatia, and the states of Venice. In so large a territory, it is almost needless to remark that a great difference exists in language, customs, laws, and manners.

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Provinces.		Chief Towns.
Lombardy and Venice, Italians..	..	Milan Venice
Hungary	Sclavonians	Pesth
Bohemia		Prague
Magyars, Transylvania		Clausenburg
Carinthia		Klagenfurt
Carniola		Laybach
Illyria		Trieste
Moravia		Brunn
Silesia		Troppau
Galicia		Lemberg
Dalmatia		Zara
Sclavonia		Esseck
Croatia		Agram
Lower Austria	Germans	Vienna
Upper Austria		Linz
Styria		Gratz
Tyrol		Inspruck

The Rivers of Austria are the Danube, Elbe, Moldau, Dniester, in Italy, the Brenta, and Piave.

Vienna, the metropolis of the Empire, and one of the most ancient cities of Germany, possesses little elegance, but contains some public buildings of great magnificence. Population, 330,000. Prague, the capital of Bohemia, is the second city in the empire; it possesses the oldest University in Germany, and is noted as the residence of the old Reformers John Huss, and Jerome, of Prague. Presburg was the ancient capital of Hungary, and is beautifully situated on an eminence. Buda is the present capital of Hungary, and is famous for its baths. Trieste, situated at the N. E. extremity of the Gulf of Venice, is a free port, and extensive in commerce. Saltzburg derives its name from its extensive saltworks, and Milan is noted for its numerous manufactures and extensive trade. The trade of Austria, owing to its limited extent of sea coast, is necessarily small; the exports amounting to not more than £6,000,000 annually.

The government of Austria is an hereditary monarchy, which is absolute in most of the provinces, and somewhat limited in others.

The prevailing Religion of the Empire is the Roman Catholic, but all other sects are tolerated.

Germany.

Germany extends from 45 deg. to 55 deg. N. lat.; and from about 6 deg. to 20 deg. E. lon. The ancient history of Germany is very obscure; the Roman historians mention that it was divided into several Independent states, B.C. 211. In 432, the Huns, when

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driven from Asia conquered a great part of this country, but it was completely subdued by Charlemagne, who became the first Emperor A.D. 802. Germany formerly consisted of 300 States, large and small, governed by princes independent of each other, but subject to the Emperor, who was head of the body of which they were members. The Emperor of Germany having formally resigned that title, took on himself that of Emperor of Austria in its stead, A.D. 1806. By this act, under the auspices of Napoleon Buonaparte, the Confederation of the Rhine, or league of the German States was formed, and a Diet established at Frankfort on the Mayne, July 12th, 1806.

Germany is now divided into 38 distinct and Independent states, of which Austria is principal. The convocation of the Princes of these States, and the Deputies of four free cities, (who are connected with the confederation) form the Diet, which is held at Frankfort-on-the-Mayne: each State possesses a vote or votes according to its importance; the number of votes in all being 70. They are all put in when fundamental laws are to be enacted or changed, a majority of two-thirds being requisite to accomplish any change. On ordinary occasions, 17 votes only are taken, eleven of which belong singly to the more important States, the remaining 6 depend on the minor States, two or more of which are counted as 1 vote. The appellation Germany, is from GERMANN, that is, warlike men.

States.	Chief Cities.	Votes in the Diet.
Anhalt Bernburg, Duchy of	Bernburg	1
Anhalt Cothen, ditto	Cothen	1
Anhalt Dessau, ditto	Dessau	1
Austria, Emp.	Vienna	4
Baden, Grand Duchy of..	Carlsruhe	3
Bavaria, Kingdom of	Munich	4
Bremen, Town of	Bremen	1
Brunswick, Duchy of	Brunswick ..	2
Frankfort, Town of	Frankfort	1
Hamburg, ditto	Hamburg	1
Hanover, Kingdom of	Hanover	4
Hesse-Cassel, Electorate of	Cassel	3
Hesse-Darmstadt, Grand Duchy of ..	Darmstadt.. ..	3
Hesse-Homburg, Landg. of	Homburg	1
Hohenzollern Hechingen, Princp. of ..	Hechingen.. ..	1
Hohenzollern Sigmaringen, ditto ..	Sigmaringen ..	1
Holstein and Lauenburg, Duchies of ..	Gluckstadt ..	3
Lichtenstein, Princp. of	Vaduz	1
Lippe Detmold, ditto	Detmold	1
Lippe Schaumburg, ditto	Buckeburg ..	1
Lubeck, Town of	Lubeck	1
Luxemburg, Grand Duchy of	Luxemburg ..	3
Mecklenburg, Schwerin, ditto	Schwerin	2
Nassau, Duchy of	Wisbaden	2
Oldenburg, Grand Duchy of	Oldenburg.. ..	1
Prussia, Kingdom of	Berlin	4

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States.	Chief Cities.	Votes in the Diet.
Reuss, Py. of (elder branch)	Greiz	1
Reuss, ditto, (younger branch)	Schleiz	1
Saxe Coburg, Gotha, Duchy of	Coburg Gotha ..	1
Saxe Hildburghausen, ditto	Hildburghausen ..	1
Saxe Meiningen, ditto	Meiningen ..	1
Saxe Weimar, Grand Duchy of	Weimar	1
Saxony, Kingdom of	Dresden	4
Schwarzburg, Sonderahausen, Pr. of ..	Sonderahausen ..	1
Schwarzburg, Rudolstadt, ditto	Rudolstadt ..	1
Waldeck, ditto	Corbach	1
Wurtemburg, Kingdom of	Stuttgard	4
Mecklenburg Strelitz, Grand Duchy of ..	Strelitz	1

Rivers.—The Danube, Elbe, Rhine, Weser, Oder, Mayne, Neeker, Isar, Inn, &c.

Frankfort-on-the-Mayne, the seat of the Germanic diet, has long been a free city, and is the great emporium of the German inland trade. Population, 64,000. Munich, the capital of Bavaria, possesses many splendid public edifices; it is also the seat of a University, and its gallery of paintings is one of the finest in the world. Population, 74,000. Dresden, the capital of Saxony, is, for its magnificent bridge, spacious streets, palace, and public buildings, truly interesting. Population, 80,000. Stuttgard, the capital of Wurtemburg, is remarkable for its royal library, which contains among its valuable works, 12,000 Bibles, consisting of editions of every age and country. Population 34,000. Carlsruhe, the capital of Baden, is very remarkably built; the ducal palace is situated in the centre, from which all the streets issue, and terminate as it were in one common periphery, somewhat resembling the spokes of a wheel. Liepsic is a flourishing commercial town of Saxony, and the seat of a University. It is remarkable for its great book fairs. Augsburg, a city of Bavaria, is remarkable as being the place where the celebrated "confession of faith" was drawn up by Luther and Melancthon, A.D. 1530, and presented to the Emperor Charles the Fifth. Coburg is a strong and distinguished town. Population, 9000. Gotha is remarkable for its beautiful situation, its collections of paintings, libraries, and museum. Mentz, Luxemburg, Landau, Germersheim, Hamburg, and Ulm, are fortresses of the confederation, which are kept, repaired, and fortified, at the general expense.

The established forms of religion are the Lutheran, Calvinistic, and Roman Catholic, but all others have remarkable toleration.

The Universities of Germany are 21 in number, of which 13 are Protestant, six Roman Catholic, and two partly Roman Catholic and partly Protestant.

Lubeck, Hamburg, and Bremin, are free cities; they are sometimes distinguished as the Hanse Towns, signifying a league. This

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league was originally formed to check the rapacity of the lords of the soil, to clear the highways from robbers, and the seas from pirates.

Denmark.

Denmark extends from 53 deg., 26 min., to 57 deg., 44 min. N. lat.; and from 8 deg., 10 min., to 12 deg., 40 min. E. lon. The earliest authentic account of this country states that Seiold the first king, reigned B.C. 60. It is to be known, however, that the inhabitants at one time conquered all England.

Denmark being partly an insular, and partly a continental kingdom, its divisions are as follows:—

Divisions.	Chief Towns.
Jutland Proper or N. Jutland ..	Aalborg, Aathuus, Viborg
Sleswick or S. Jutland	Sleswick, Flensburg
Holstein	Kiel, Altona, Gluckstadt
Lauenburg	Lauenburg, Retzeburg
Islands. { Zealand Funen	Copenhagen, Elsinore
Islands. { Laaland Falster, &c.	Raskilde, Odensee

Islands.	Capes.	Gulfs & Straits.	Foreign Possessions.
Iceland The Faroe or Ferro Isles	The Skaw	The Sound Great and Little Belt Lyme Fiord	St. Thomas, St. Croix, & St. John, in the W. Indies; Tranquebar & Serampore, in the E. Indies; Greenland in Africa; & several Forts on the coast of Guinea

Copenhagen, the metropolis of Denmark, was known as a royal residence, A.D. 1443. This city has been repeatedly attacked by fire; in 1728, more than 70 of its streets were burnt, and in 1794, its famous palace, valued at £4,000,000, was completely burnt, together with the arsenal, admiralty, and 60 streets; but it is now a well-built, fortified, and commercial city, on the eastern coast of the island of Zealand. Population, 120,000.

About 22 miles to the north of Copenhagen, at the entrance of the Sound, lies the sea-port and fortress of Elsinore, where all ships passing through the Sound must pay tribute to the Danish king. Viborg is remarkable for its antiquity, but especially as being the place where the glorious Reformation commenced, A.D. 1528.

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The government of Denmark became an absolute monarchy, A.D. 1660, but latterly there has been a representative constitution.

The national religion is the Lutheran, but all others are tolerated.

Sweden and Norway.

Sweden and Norway, the ancient Scandinavia, extends from 55 deg., 20 min., to 71 deg. 10 min. N. lat.; and from 5 deg., 20 min., to 31 deg. E. lon. These countries had been for a long period united to Denmark. Sweden recovered its independence of Denmark, A.D. 1523, but Norway still continued in union with that country until the year 1814, when it was wrested from Denmark by the Allied sovereigns, and united to Sweden. Sweden consisted generally of three kingdoms, now called great divisions, which have been divided into 24 districts called LEANS.

Great Divisions.	Chief Towns.
Nordland, which includes W. Bothnia & Swedish Lapland.	Tornea, Umea, Hernosand
Sweden Proper.. ..	Stockholm, Upsal, Gefle
Gothland	Gottenburg, Carlscrona, Calmar, Malmo

Islands.	Rivers.	Foreign Possessions.
Gothland Oeland .	Gotha, Motola, Tarnea, Dahl, Clara, Lulea.	Island of St. Bartholomew in the W. Indies.

Stockholm, the metropolis of Sweden, is built on seven small islands and peninsulas: it is not an ancient city, but has greatly increased in handsome buildings and manufactories since it became the residence of the court. Population, 84,000. Upsal was the ancient residence of the Swedish kings; it possesses a famous University, and its observatory is remarkable as being the meridian from whence the Swedish geographers take their longitude. Gottenburg is famous as the principal landing place in Sweden, and in commercial importance ranks next to Stockholm.

The government of Sweden is a limited monarchy. The Diet consists of four orders, viz.: the nobility, clergy, citizens, and peasants. The established Religion is the Lutheran and the Church Episcopal.

Norway is divided into four governments or provinces: it was an-

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ciently divided into a number of petty states, and it was but little known (except for piracies) until A.D. 1397, when it was united to Denmark.

Provinces.	Chief Towns.
Aggerhuus or Christiania	Christiania
Christiansand	Christiansand
Bergen	Bergen
Drontheim, including Nordland and Finmark	Drontheim, Hammerfest, and Zrouseo

Islands	Bays.	Rivers.
The Loffoden Isles & Mgerve	West Fiord and Drontheim Bay.	The Glommen, Drammen and Louren, enter the Skager Rack.
Hilteren & Vigten Isles	Christiania Bay.	The Tana and Alten, the N. Ocean,

Christiana, the metropolis of Norway, was built in 1624, and named after Christian the Fourth, its founder. It is the seat of the Constitutional assembly, and the University. Population, 23,100. Bergen is usually regarded as the capital of Norway, as being more commercial. Drontheim is remarkable as the ancient residence of the Kings of Norway. Norway, since the year 1814, though a distinct and free kingdom, is governed by a Viceroy of the Swedish monarch. The established religion is in every respect the same as that of Sweden.

Greece.

Greece extends from 36 deg., 21 min., to 39 deg. N. lat.; and from 21 deg. 10 min., to 24 deg. E. lon. This ancient country was inhabited by the progeny of Javan, fourth son of Japheth. It received its name from one of its ancient kings called Græcus.

Greece consists of three great divisions, viz.: continental Greece, the peninsula of the Morea, and the islands; each of which possesses a town of its own name. These have been again divided into ten Nomarchies.

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Nomarchies.	Chief Towns.
Continental Greece.	
Attica and Bœtia	Athens, Thebes
Acarnania and Etolia	Missolonghi, Lepanto
Locris and Phocis	Zeileum, Salona
The Morea.	
Arcadia	Tripolitza
Messenia	Modon, Navarino
Laconia	Mistra
Argolis and Corinth	Nauplia, Hydra, Corinth
Achaia and Ellis	Patras
Islands.	
Cyclades	Hermopolis
Eubœa and N. Sporades ..	Chalcis or Egripo

Capes.	Gulfs.	Islands.
Clareudz, Gallo, Matapan, St. Angelo, Skyle, Colonna	Lepanto, Elgina, Nauplia or Napoli, Kelekythia, Coron	Negropout, Skyro, Ispara, Salanis, Egina, Doros, Hydra, Spessia, The Cyclades, the chief of which are Andro, Miconno Paros, Syra, Antiparos, Milo, Santorini, Nio

Athens, the capital of Greece, was once the celebrated capital of ancient Attica. Its magnificent ruins still attest its former splendour; it is now but a mean town. Population, 13,000. Napoli-di-Romania the late, is a well built town, strongly fortified, and of some commercial activity. Hydra, in the island of Hydra, is considered the largest and most populous town of Greece. Population, 16,000. Tripolitza, the principal town of the Morea, was the residence of the Turkish Pacha. Mistra is also in the Morea, near the site of the ancient Sparta.

The government of Greece is an hereditary monarchy, under the protection of England, France, and Russia. Otho, Prince of Bavaria, is the reigning King. The national religion is that of the Greek church, sometimes known as the Eastern church, in contradistinction to the Western or Roman Church.

Turkey in Europe.

Turkey in Europe extends from 39 deg., to 48 deg., N. lat.; and from 16 deg., to 30 deg., E. lon. This country was for several centuries under the control of the Greek Emperors, the successors of Constantine the Great, but its Capital being taken by the Turks, A.D. 1453, put an end to the Roman Empire in the East; since which time it has been in the possession of the Turkish Sultans.

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Provinces.	Chief Towns.
Thessaly	Larissa, Tricala
Macedonia	Salonica, Ceres
Bulgaria	Sophia Verna,
Bosnia and Croatia	Bosna, Serai, Trawnik
Albania	Janina, Durazzo
Roumelia	Constantinople, and Adrianople
Tributaries.	
Moldavia	Jassy, Galatz
Wallachia	Bucharest, Tergovist
Servia	Belgrade, Semendria

Islands.	Seas & Straits.	Gulfs.	Rivers.
Candia, Rhodes,	The Archipelago, Sea	Arta	Danube
Scio, Mytelene,	of Marmora	Salonica	Pruth
Temnos, Patmos	The Dardanelles	Vole, &c.	Save
Cyprus	The Straits of Constantinople		Maritza, &c.

Constantinople, the metropolis of Turkey, was so called from Constantine the Great, its founder, who removed the seat of the Eastern empire here, A.D. 328. Its external appearance is very interesting, but its interior is far otherwise; its streets are for the most part narrow and dirty, and its houses are in general low, and meanly built. Population, 500,000. Adrianople ranks next to the capital in importance; it was the residence of the Sultan prior to the taking of Constantinople by Mahommed the second. Population, 100,000. Belgrade is remarkable for its fortress. Bucharest, the capital of Wallachia, is a flourishing town on a tributary of the Danube. Salonica, the ancient Thessalonica, is an important commercial city of Macedonia.

The established worship of Turkey is the Mahommedan, of a bigotted and superstitious character: there are however many members of the Greek Church, Armenians, and Jews.

The government of Turkey is a despotic monarchy. The Sultan or Grand Seignior, has unlimited power over the lives and properties of his subjects, an authority, which is too often used in the most tyrannical manner. The power of the Turks, which at one time threatened all Europe, is now greatly reduced; they have lost Greece, and many Asiatic possessions, and the Czar of Russia has made many inroads on the territories of the Sultan. The Court, or government of Turkey, is known as the Sublime Porte.

Russia.

Russia extends from 44 deg. to 70 deg. N. lat.; and from 18 deg. to 60 deg. E. lon. This country, the ancient Surmatia, was

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inhabited by the Scythians; the earliest authentic account is that of Rurick, the Grand Duke of Novogorod, A.D. 862. Moscow was founded by Audrey the First, A.D. 1158. The Mongol Tartars conquered Russia, A.D. 1200, and held it till 1540 when Basilowitz restored its independence. In 1696, Peter the great became sole monarch of Russia, to whom the present power and civilization of Russia are chiefly due. In the middle of the 16th century, Siberia was discovered, and conquered by the Russians.

Russia occupies more than half of Europe, and is divided into 50 provinces or governments. Ten of these formerly belonged to Poland, and comprised about three-fourths of that kingdom. The great divisions of Russia, as known in history, comprise Russia proper, Finland, Lapland, Don Cossacks, and Polish Russia. Finland formerly belonged to Sweden, but has, with a part of Lapland, belonged to Russia since 1809. The Cossack tribes inhabit the regions of the Black Sea.

Islands.	Lakes.	Rivers.	Gulfs, Bays, &c.
			Bothnia
Aland	Ladoga	Volga	Finland
Oesel	Onega	Don, Dnieper	Riga
Dago	Ilmen, &c.	N. Dwina	Archangel Bay
Nova Zembla		S. Dwina	Onega Bay
Spitzbergen, &c.		Dniester, Memel	Straits of Kaffa

St. Petersburg, the metropolis of Russia, was founded by the Czar, Peter the Great, A.D. 1703, prior to which it was occupied only by a few fishermen's huts. It is partly situated on the banks of the Neva, and partly upon 12 islands, being about 17 miles in circuit. It ranks amongst the first cities of the world, and exceeds all others in the taste of its outline and structure. Population, 470,000.

Moscow, the ancient capital, was voluntarily destroyed by the inhabitants when invaded by the army of Buona arte, A.D. 1812. It has since been built with more than its former splendour. The most remarkable part of the city is the Kremlin, the former palace of the Czars. Population, 380,000. Archangel is the most northerly port in Europe of any importance: about 300 vessels, chiefly British, visit this port annually. Abo, in Finland, is remarkable for its University. Odessa is a flourishing free port on the Black sea. Riga, on the Dwina, about 9 miles from the sea, ranks next in commercial importance to St. Petersburg, and is strongly fortified. The remarkable fortress of Cronstadt is situated in the gulf of Finland, about 22 miles from St. Petersburg.

The National religion of Russia is the Greek Church, but all other Sects have full toleration. The government is an absolute monarchy, and the poor are still held in a degrading state.

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Descriptive Tables of Asia.

Asia extends from 1 deg., 20 min., to 76 deg. N. lat.; and from 26 deg. E. to 170 deg. W. lon. Its length is about 6000 miles, and its breadth 5200. It is considered the largest of the great divisions of the Globe: its superficial area, including the islands, has been estimated at 20,000,000 square miles. This country is particularly remarkable as being so frequently mentioned in the books of Scripture, and as the place in which our Saviour accomplished the salvation of man.

Asia contains the following Countries:—

Countries.	Chief Towns.
Hindostan	Calcutta, Madras, Bombay, Delhi
China	Pekin, Canton, Nankin
Turkey in Asia ...	Smyrna, Aleppo, Bagdad
Arabia	Mecca, Medina, Mocha
Persia...	Teheran, Ispahan
Eastern Peninsula of India	Ava, Arracan, Bankok
Thibet	Lassa
Afghanistan	Cabul, Candahar, Herat
Chinese Tartary ...	Cashgar, Yarkand
Independent Tartary ...	Bokhara, Samarcand
Asiatic Russia	Tobolsk, Astracan
Japan	Jeddo, Miaco, Nangasaki

Islands.	Seas & Gulfs.	Rivers.	Straits.	Capes.
	Red Sea	Oby, Lena		
Ceylon	Arabian Sea	Yenisei	Babelman-	Comorin
Sumatra	Bay of Bengal	Sagalien	deb	Severo
Borneo	Persian Gulf	Hoangho	Ormus	Baba
Java	Chinese Sea	Ganges	Park's Chan-	Ras-el-Hud
Celebes	Yellow Sea	Indus	nel	Romania
Japan	Gulfs of Siam and	Brahmapoutra	Sunda	Cambodia
Philippine	Tonquin	Euphrates	Malacca	East Cape
Isles	Sea of Japan	Yang-tsekiang	Behring	Lopatka
New Guinea	Sea of Okhotsk	Irrawaddy	Macassar	Negrais
New Holland	Caspian Sea	Tigris		
New Zealand	Sea of Aral	Jaxartes		
	Sea of Kampe-	Oxus		
	chatka	Maykaung		

Hindostan or India.

Hindostan extends from 8 deg., 50 min., to 35 deg. N lat; and from 67 deg., to 92 deg. 30 min. E. lon. This country was conquered by Alexander the Great, B. C. 327; and its authentic history

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is considered to commence with the conquests of Mahmud Gazni, A. D. 1000. It is now almost under the control of the British.

Hindostan is divided into three great divisions—viz., *Northern India*, comprising the mountain districts and Hindostan Proper, which are again divided into nineteen Provinces; *Central India*, or the Deccan, containing nine Provinces; and *Southern India*, or the Carnatic Peninsula, containing nine Provinces.

Islands.	Rivers.	Gulfs.	Straits.	Capes.
Ceylon, The Maldines, and Laccadives, Andaman, and Nicobar Islands	Ganges Indus Sutlej Tapte Brahmapoutra, Ristna Cavery Jumna Gogia Nerbudda	Cutch Cambay Bay of Bengal Manaar	Palk's Channel Sts. of India	Comorin S. of India

Calcutta, the capital of British India, is, for its splendid edifices, and elegant villas and gardens, mosques, spires, and temples, justly styled the *City of Palaces*. The English first settled here A. D. 1689. Its college was founded in 1801. Population 500,000.

Madras, the capital of the Presidency of Madras, is very unfavourably situated on a flat shore, where a rapid current runs. It is the seat of a Bishop; the Fort of St. George was built by the English, 1620. Population 462,000.

Bombay, the capital of Western British India, is situate on a small island. It is strongly fortified, and its harbour is one of the finest in the world: it was given by the Portuguese, with the Princess Catherine, on her marriage with Charles the Second, 1661. It was afterwards granted by William the Third to our East India Company. Population 230,000.

Delhi was the ancient capital of India, and the residence of the Great Mogul. When in its splendour, it was said to cover 20 square miles.

The Government of India, which formerly consisted of assemblies of Sultans, Nabobs, and Rajahs, is now completely regulated by British laws.

The religion of Hindostan consists of two distinct persuasions—viz., the Hindoo and Mahometan. The rules of the former are very obscure; the great supreme deity Brahm, remains in holy obscurity, and is never worshipped singly from curious existing considerations. These are known as Brahma, the Creator; Nishnu, the Preserver; and Shiva, the Destroyer. Buddhism is more general than Brahmanism, as it claims to be a reformation on the latter.

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China.

China extends from 20 deg. to 42 deg. N. lat.; and from 77 deg. to 128 deg. E. lon. This country is considered the oldest empire in the world. The dynasty of Han commenced B. C., 202. The Chinese first appear in history, B. C., 129, as allies of the Scythians, against the Phraates.

Islands.	Rivers.
Heuna, Macao, Loo Choo Hong Kong, Fosmosa	Yellow River, Yang-tse, Kiang. Blue River, Choo-kiang or Canton River Peiho or Pekin River

China is divided into three great divisions—viv., *Northern China*, containing six Provinces; *Central China*, containing five Provinces; and *Southern China*, containing four Provinces.

Pekin, the capital of China, is situate about 30 miles south of the Great Wall: it is about 15 miles in circumference, and of a square figure. Population about 2,000,000.—Nankin, the second city of China, is of irregular shape, but nearly as large as Pekin, and was formerly an imperial city. Population 600,000.—Canton is a large city, and the only emporium of European commerce. The island of Hong-Kong, at the mouth of the river of Canton, has been lately ceded to the British. Population of Canton 1,000,000.

The Government of China is the *patriarchal*. The Emperor is absolute, but cruelty is of rare occurrence. There is no state religion in China, but the three chief professions embrace those of Confucius, Taotze, and Buddha. The Great Wall of China, said to have been built 200 B C., is 150 miles long.

Turkey in Asia.

Turkey, in Asia, extends from 30 deg. to 40 deg., 10 min., N. lat. and from 26 deg. to 48 deg., 30 min., E. lon. This country may be considered as an eastern continuation of European Turkey: its laws are the same, but its Mahomedan principles are more bigoted than those of European Turkey.

Divisions.	Chief Towns.
Asia Minor or Anatolia ..	Smyrna, Manias, Burse, Angora
Roum	Tocat, Siyas, Amasia
Caramania	Konieh, Tarsus, Adana
Armenia	Erzeroum, Irbicemde, Kars.
Kurdistan	Van, Betlis
Syria	Aleppo, Damascus, Tripoli
Irak-Arabi	Bagdad, Busora
Algezira (Mesopotamia) ..	Diarbekir, Mosul, Orfa
Palestine	Jerusalem, Acre, Tabasie, Naplous

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Islands.	Rivers.
Cyprus	Kisil, Irmak, Sakaria, Sarabat, Euphrates, Tigris, Jordan, Orontes

Smyrna is a city of four miles in circuit, and the capital of Asia Minor. Its exterior, like most Turkish towns, is very beautiful, but its interior falls far short of anything like beauty. Its commerce is very great. Smyrna is the supposed birth-place of the poet Homer. Population 140,000.

Aleppo, the chief city of Syria, is very commercial, but badly defended. It is reckoned, for beauty, cleanliness, and the polished manners of its inhabitants, the first city of the Turkish empire. Population 60,000. About 40 miles to the west of Aleppo stands Antakea, the ancient Antioch; which, notwithstanding its ancient luxury, is now but a ruinous town, presenting scenes of the greatest wretchedness. Population 20,000.—There are about 3000 Christians in Antioch. There are many more large and interesting towns in Asiatic Turkey, a brief account of which it would be impossible to give in these limited pages.

The inhabitants of Asiatic Turkey are of many tribes, differing widely in habits and employments. There are Greeks, Christians, and Armenians.

Palestine.

This ancient country comprised a territory of about 200 miles in length, by 90 in breadth. Upon the dispersion of mankind, it fell to the lot of Canaan, from whom it is called in Scripture the Land of Canaan. It also received the name of the Land of Promise, or Israel, on account of the Almighty having given it to the Children of Israel, in accordance with the promises to Abraham, Isaac, and Jacob. It was called Palestina by the Greeks, Latins, and neighbouring nations, from the Philistines, who inhabited that portion of it bordering on Egypt. The name of Judea was first applied to its southern part when ten of the twelve tribes revolted from Rehoboam, and erected a distinct kingdom known as the kingdom of Israel: the remaining two tribes became known as the kingdom of Judah. The latter appellation was extended to the whole country, especially to all parts inhabited by the Jews after the Babylonish captivity. The name of Holy Land is applied to it by Christians as having been the residence of our Blessed Lord. Palestine, when Abraham left his own country, B. C. 1927, was divided into several families known as the Amorites, Sidonians, Jebusites, Hittites, Girgasites, Hivites, Arkites, &c.; but when the Israelites left Egypt, B. C. 1497, and

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after wandering forty years in the wilderness, two of the tribes and a half settled east of the Jordan: the remaining tribes, after the death of Moses, crossed the Jordan, and divided the western portion between them by lot. At the time of our Saviour, we find both the eastern and western divisions divided into five principal parts—viz., Galilee, Samaria, Judea, on this side the Jordan, and Batanea and Perea beyond the Jordan.—In the following table may be seen these latter divisions, and the tribes which before possessed them.

Phenice		Asher
On this side the Jordan.	Galilee	Naphtali Zebulun Issachar
	Samaria	Menasseh half tribe Ephraim
	Judea	Benjamin Judah Dan Simeon
Beyond the Jordan.	Batanea	Menasseh half tribe
	Perea	Gad Reuben

The Sons of Joseph, Ephraim, and Menasseh, were properly but one tribe. Levi's tribe, had no division assigned them, but Cities in the land of each tribe were given to them to live in, with offerings first fruits and tenths.

Galilee consisted of two divisions—viz., Galilee Superior and Galilee Inferior. In the former, the chief places were Dan, the most northerly town in Palestine; whence the expression from *Dan even to Beersheba:* at the northern extremity of the Lake of Gennesareth stood Bethsaida, the place of the Apostles Andrew, Peter, and Philip; Capernaum, our Lord's chief habitation; and Chorazin, of which our Lord denounced a woe for the unbelief of its inhabitants. In Galilee Inferior stood Tiberias, on the shores of a Lake of the same name, and which was the capital of the Province; Cana, where our Lord performed his first miracle, and the birth-place of the Apostle Nathaniel; Nazareth, where our Lord was brought up; Nain, where our Lord raised the widow's son; Jezreel, the favourite residence of the Kings of Israel; and Ptolemais, now called Acre.

Samaria occupied the territory between Galilee, the Jordan, and Judea; so that it would be impossible to pass from Galilee to Judea without passing through Samaria.

Samaria, the capital of the Province, was so called from Shemer, of whom Omri, King of Israel, bought the site of the city. Shechem in Mount Ephraim, the ancient capital was founded by Jeroboam, the son of Nebat. Cesarea was situated on the coast, the residence of Cornelius, St. Peter's convert; and Joppa, where the latter had his remarkable vision.

Judea occupied the southern division of Palestine, and was the largest of all the others. Its capital, and the capital of all Palestine, was Jerusalem: it was, in the time of Melchisedec, called Salem;

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may be remarked, that the existence of the inhabitants chiefly depends on the sea and land breezes; the former blowing through the day, the latter during the night, thus cooling the suffocating atmosphere of the [illegible]

Violent earth[illegible]
these islands:
to this day o[illegible]

In what ocea
to America, ho
largest? Its
mountains? T
The pitch lak
India Islands?
The chief trees
Its chief mou
Jamaica? Of
rivers? The g
the climate an
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and by the Jebusites, who possessed it in Joshua's time, called Jebus. The city was completely destroyed by Titus, A. D. 70. Jericho was the first city taken by the Israelites after entering Canaan; the walls of the city in a miraculous manner fell down flat: Gilgal, where the Israelites first encamped after passing the Jordan on dry ground; Bethlehem, the birth-place of our Saviour, and of King David; Bethel, where Jacob had his remarkable dream. The cities of the Philistines were Gaza, Gath, Ascalon, Azotus, and Ekron.

Batanea, the country beyond Jordan, to the north of Perea, contains the city of Cesarea Philippi, so called in honour of Augustus Cæsar. In this region stood Mizpeh, the residence of Jephtha; and here was also the country of the Gadarenes.

In Perea, a name sometimes given to the whole country beyond the Jordan, stood Bethabara, where John was baptising; and the place of our Saviour's retreat at the Feast of the Dedication.

Of the Mountains of Palestine may be mentioned Hermon, in the northern Province of Batanea; Mount Carmel, on the northern borders of Judea, terminating in the Mediterranean Sea; Gilead, in the centre of Perea; Mount Tabor, a little to the east of Nazareth, supposed to be the mount of transfiguration; Mount Gilboa, in northern Samaria, where King Saul died: the Mountains of Abarim in Perea, where Moses died; Ebal, and Gerezim, famous for the recital of the law of Moses—the former for the curses, & the latter for the blessings.

Arabia.

Arabia extends from 12 deg., 30 min., to 34 deg., 30 min., N. lat.; and from 32 deg., 30 min., to 60 deg. E. lon. This country is said never to have been conquered Its inhabitants, the descendants of Ishmael, became prominent in history A. D. 622, under the name of Saracens, when they followed Mahomet as their prophet, and completed great conquests.

Divisions.	Chief Towns.
Hejaz	Mecca, Medina, Jidda
Nejed	Derayeh
Oman	Meascat, Rostak, Sear
Lahsa	Lahsa
Yemen	Sena, Mocha, Aden
Hadramaut	Shileam, Deam

Islands.	Capes.
Socotra, Kahnun	Babelmandeb, Mussendom

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Mecca, the metropolis of Arabia, called by the Mussulmans, in honour of Mahomet's birth-place, the *Mother of Cities*. This city is about five miles in circuit, and contains some regular and handsome streets. Population 24,000.—Medina is remarkable as containing the tomb of Mahomet, which is enclosed within a magnificent mosque. Population 20,000.—The national religion of Arabia is that of the false prophet Mahomet, born A. D. 570, and by whose koran their principal political laws and civil institutions are governed.

Persia.

Persia extends from 26 deg. to 39 deg. N. lat.; and from 44 deg. to 60 deg. E. lon. This ancient country, in the seventh century, became joined to the empire of the Califs. The latter, in turn, were attacked by the Tartars; but in the disputed invasions of the Saracens in latter times, this kingdom suffered the greatest misery and barbarous cruelties In the 16th century, Ishmael Sophi wrested the kingdom from the invading tyrants, and erected a native dynasty.

Provinces.	Chief Towns.
Azerbijan	Tabriz
Mazandeaan	Saree
Ghilan	Reshed
Irak-Ajemi	Teheran, Ispahan
Hars	Shiraz
Kerman	Kerman
Khorassan	Mushed

Islands.	Rivers.
Ormus, Karak, Kishm	Araxes, Kizil, Ozen

Teheran, the metropolis of the kingdom, is about four miles in circuit, but badly fortified. It is the seat of the sovereign and government. Population 156,000.—Ispahan, the ancient capital, is situated about the centre of the kingdom. It ceased to be a royal residence after its destruction by the Affghans, A. D. 1722. Population 150,000.—Shiraz is a city of five miles in circuit: its large mosque is the greatest stronghold of Mahometanism in the East.—The national religion of Persia is Mahometan, of the sect of Ali, which is considered heretical by the Turks, who are of the sect of Omar. The Government of Persia is an absolute monarchy, the King or Shan being considered the Vice regent of the Prophet.

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Eastern Peninsular of India.

Eastern India extends from 1 deg., 20 min., to 28 deg. N. lat.; and from 90 deg. to 109 deg. E. lon. This vast territory comprises the Burman empire, the kingdoms of Siam, Cambodia, Laos; the Empire of Annam, and the Peninsula of Malacca.

Rivers.	Islands.	Capes.
Irrawady, Salmen, Menam, Cambodia	St. Matthew's Domel Pulo, Prince of Wales's Island, Singapore	Cambodia Romania Negrais

Ummerapoora, the capital of the Burman empire, is noted for the splendour of its religious houses, but the other houses are mean in their appearance: its fortifications are considered good. Population 170,000.—The Government of the Burman empire is despotic, and very extensive: their form of worship is Buddism.

Siam, the capital of the Kingdom of Siam, is about four miles in circuit, but thinly inhabited. The Government is a tyrannical despotism.

Laos, Annan, and Cambodia formed at one time a part of China, but raised the standard of independence on the Mogul invasion of China in the 13th century. The Government of these kingdoms is despotic: the religion of the Court is that of Confucius, but the body of the people embrace that of Buddah.

Malacca, at one time subject to Siam, is now broken up into a number of independent Governments of the worst formation. The Rajah, who is the head of the State, is but indifferently obeyed. A great part of this country is now under the British, which is the cause of the ferocious character of the Malay so happily disappearing.—The British settlements in Malacca alone occupy an area of 800 square miles.

Thibet.

Thibet extends from 26 deg. to 39 deg. N. lat.; and from 75 deg. to 105 deg. E. lon. This country, sometimes called the Switzerland of Asia, possesses the highest mountains in the world: it is now governed by the Emperor of China, and contains four divisions.

Lassa, the metropolis, is the residence of the Grand Lama, who is the head of their very singular religion; and also of the Emperor of China's Viceroy. Population 20,000. The Grand Lama is supposed immortal, immaculate, and all powerful: this differs from the Hindoos, who believe in no supreme power. The manners of the Thibetians are as singular as their religion is peculiar: all the brothers of the same family possess the same wife, which the eldest has the privilege of selecting.

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Affghanistan.

Affghanistan, sometimes called the kingdom of Cabul, extends from 25 deg. to 37 deg. N. lat.; and from 58 deg. to 72 deg. E. lon.; consists of seven divisions, including Beloochistan.

Rivers: Indus, Heermund, Cabul.

Cabul, the metropolis of the country, is an ancient and beautiful city. It is not extensive, but remarkably compact. Population 60,000. The ancient metropolis was Kandahar. Kelat is the capital of Beloochistan. Population 20,000.—The religion of the Affghans is the Mahometan, of the Sonnite sect.

Tartary.

Tartary, in its widest sense, may be applied to the whole extent of territory between the Caspian Sea and the Pacific Ocean; and from the empires of China, Hindostan, Cabul, and Persia, to Asiatic Russia. It consists of two principal divisions—viz., Independent, and Chinese Tartary: the former has received its name from being possessed by a number of independent tribes, to distinguish it from the latter, which is subject to China. The divisions of Independent Tartary are Turkistan, Great Bucharia, Kharism, and Badakshan. The divisions of Chinese Tartary are Mongolia, Mandshuria, Little Bucharia, and Corea.

Rivers of Ind. Tartary.	Rivers of Chinese Tartary.
Jihou, Oxus, Sihon, Jaxartes	Sagalien, Ili, Yarkland, Amur

Bokhara, the capital of Indpt. Tartary, though of a mean appearance, possesses mosques and public buildings of some eminence. It has been long noted for its Mahometan Colleges, some of which are capable of receiving 600 students. Population 150,000. A little to the eastward of Bokhara is the city of Samaracand, another stronghold of Mahometan theology. It was a noted city in the days of Tamerlane. Population 54,000.

Cashgar, the capital of Chinese Tartary, is a seat of very considerable trade.

The prevailing religion of the Tartars is Mahometan, and their Government is complete despotism. The inhabitants of these regions for the most part live in tents.

Asiatic Russia.

Asiatic Russia extends from 38 deg. to 76 deg. N. lat.; and from 36 deg., 30 min., to somewhat more than 180 deg. E. lon. This

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immense country was originally inhabited by wandering tribes, differing in language and habits; but all lived in tents. Since the middle of the sixteenth century, this territory has been under the Russians, who, from its dreary and desolate appearance, use it chiefly as a penal settlement for criminals or prisoners of war.—Asiatic Russia consists of 16 Provinces, of which there are seven in Siberia, and nine southern.

Islands.	Seas & Gulfs	Capes.	Rivers.
	Sea of Oby		
Aleutian, or Fox Islands	Sea of Ochotsk	East Cape	Volga, Oby, Ural
Kurile Isles	Sea of Kara	Lopatka	Yenisei, Kur,
	Gulf of Anadir	Severo	Lena

Tobolsk, the metropolis of Asiatic Russia, was built by the Russians early in the 17th century: the buildings are chiefly of wood, but the commerce is considerable. Population 26,000.—Irkutsk, the residence of the delegates of the Russian Government, is noted for its Public Schools and Churches. It is also a place of considerable trade. Population 16,000. Astrakan is an important commercial town in the south-western part of Asiatic Russia: it is upwards of three miles in circuit. Population 50,000.—Teflis, the capital of Georgia, is an important military station, and the residence of the Commander-in-Chief.

The prevailing religion of Asiatic Russia is Buddism; very few Christians occupy these parts. The various tribes inhabiting these miserable regions are allowed every privilege by the Russians, in return for which they pay a moderate tribute to their conquerors.

Japan Empire.

This Empire may be naturally compared to the British Isles; like them, it is composed of several islands. The Japanese have always shown a great animosity to European intercourse, even greater than the Chinese. Japan was first discovered by Mendez Pinto, A.D. 1542; and the Portuguese, a little after, were permitted to erect a factory at Nangasaki, but they were expelled through the suspicions of the Japanese. The Dutch, who succeeded the Portuguese, are under great restrictions in their intercourse. The English first visited the Empire, A.D. 1612.

Islands.	Chief Towns.
Niphon	Jeddo
Sikokf	Tosa
Kiusiu	Nangasaki
Jesso	Matsmai

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Niphon is by far the largest of these islands, it possesses Jeddo the metropolis of the Empire, which contains many splendid edifices. It is 16 miles in circuit, and one of the most magnificent cities of Asia. Population, 150,000. Meaco, the ancient capital, is still a beautiful city, and the fountain of the literature and science of the Japanese; it also possesses the public mint. The public buildings of the Japanese cities are truly magnificent; the Imperial palace is said to be a city in itself, and the pillars of the hall of audience are of massive gold.

The Japanese acknowledge the supreme Creator, but they have many other gods whom they equally worship: they are divided into two great sects, viz., Sinto and Budsdo; the former acknowledging a supreme being, and regarding the inferior deities as mediators only: the latter believing in Budha, and also in the tenet of the transmigration of souls. The government of the Japanese is pure despotism.

Descriptive Tables of Africa.

The continent of Africa is the third in point of size of the four great continents, but the most inferior in moral and political character. It extends from 37 deg. N. lat., to 34 deg. 50 min., S. lat.; and from 17 deg., 30 min., W. lon., to 51 deg. 20 min., E. lon.

This country was first peopled by Ham, one of the sons of Noah; it was but imperfectly known to the ancients. Its northern States (on the central coast of which stood ancient Carthage), Egypt and Ethiopia, were at one time renowned for a high degree of civilization, but by the conquests of the Roman Empire they became humbled, and through the repeated victories of succeeding ages, now present scarcely any trace of their former refinement. With the exception of the latter countries, the whole of Africa has ever been in utter barbarism. The late discoveries of modern travellers, and the exertions made by England to introduce civilization and christianity into this benighted continent will, it is hoped, be effective of the happiest results.

In a descriptive table in the second part of this work, may be seen the names of the various countries of Africa, (as now known) with their chief towns.

In the following table may be found the chief islands, gulfs, and bays, straits, capes, and rivers of Africa.

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Rivers.	Straits.	Capes.	Gulfs & Bays.	Islands.
Nile		Cape Con	Cabes	Azores
Niger	Babel-man-deb	Good Hope	Sydra	Canaries
The Senegal		Verde	Tunis	Madeiras
The Gambia	Gibraltar	Guardafui	Guinea	Cape Verde Islands
Coanza	Mozambique	Spartel	Saldanha &	Fernando Po
Congo		Palmos	Table Bays	St. Thomas
Zambese		Blanco	Algoa	St. Helena
Orange River		Formosa	Delagoa &	Madagascar
Rio Grande		Three Points	Sofalo Bays	Ascension
		Negro	The Red Sea	Mauritius
				Socotora
				Bourbon

The northern frontiers of Africa, usually known as the Barbary States, are occupied by the Empire of Morocco, which includes the important kingdom of Fez, the regencies of Algiers, Tunis, and Tripoli, and also the dependency of Barca.

Morocco, the metropolis of the Empire of the same name, was founded in the eleventh century; it is about 8 miles in circumference, but the greater part of the city presents a heap of ruins. The population numbers 40,000. The city of Fez, founded in the eighth century, was once thickly inhabited: its present population is 100,000. The court of the sovereign is held at Mequinez. Algiers, the capital of the regency of Algiers, is a city of 3 miles in circuit, and, from its beautiful position on the declivity of a hill, presents to the sea (on the shore of which it has been built) a magnificent appearance. Population, 30,000. Tunis, the capital of Tunis, is situated about 12 miles from the site of ancient Carthage, and is the most commercial city in the Barbary States. It is a large but badly constructed city, its streets being so narrow and filthy that they are with difficulty passed through. Population, 130,000. Tripoli, the capital of Tripoli, is situated on a rock washed by the sea. This city is tolerably large, and, for a Mahometan town, fairly fortified. Population, 26,000.

The government of the Barbary States is a cruel and barbarous despotism. The sovereign of Algiers, lately deposed by France, was called the DEY; that of Tunis, the BEY; and of Tripoli, the BASHAW. The established religion is Mahommedanism.

Egypt.

Egypt, occupying the N. E. territory of Africa, was the first civilized country in the world. It became a Roman province B. C. 30, and was wrested from the Emperor Heraclius, by Omar, the Saracen Calif, A.D. 639. The dominion of the Mamelukes was established

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A.D. 1171; and was taken by the Turks in 1517: the government of the latter was interrupted by Napoleon, in 1799, but was restored by the British, A.D. 1801. Egypt is now governed by a Pacha, who rules absolutely; it is divided into three great divisions viz.,—Upper, Lower, and Central Egypt, which are again sub-divided into 16 provinces.

Cairo, the metropolis of Egypt, was founded 973, and is about 8 miles in circumference, but its streets are narrow, dirty, and crooked; the only buildings of elegance being the mosques and tombs of the Mamelukes. Population, 240,000. Alexandria, the ancient capital, was built by Alexander the great, B.C. 332; was conquered by Cæsar, B.C. 47, when the library of the Ptolemies, containing 400,000 volumes, was burnt. It was formerly a place of great trade, but it is now nearly forsaken. Population, 15,000.

The inhabitants of Egypt are composed chiefly of Arabs and Turks, who profess the Mahometan faith. The original inhabitants are known by the appellation Copts, or Coplitites, who profess a corrupt and degraded form of Christianity. There are also many Jews.

Nubia, Abyssinia.

These countries, anciently known as Ethiopia, lie to the south of Egypt. Nubia consists of four great divisions viz.,—Turkish Nubia in the North, the Kingdom of Dongola in the centre, Bedjas, bordering on the Red Sea, and Sennaar in the South. Abyssinia, to the south of Nubia, is divided into three principal parts viz.,—Tigre, Amhara, and the provinces of Efat and Shoa. Nubia and Abyssinia have long been subject to a number of petty chiefs, whose strifes for mastery have caused many bloody battles. They have lately been subdued by the Pacha of Egypt, to whom they pay an annual tribute.

Sennaar, the capital of Nubia, is a large town, but of a very mean appearance; the houses are chiefly built of clay mixed with straw. Population 9,000. Mandera, the old capital, is now in ruins. Gondar, the capital of Abyssinia, though at present in the possession of the Galla, is the largest town in the kingdom: its houses (with the exception of the palace,) are of clay, and seldom exceed one story in height. Population 50,000. Adowa is noted as the residence of the king of Abyssinia. Population 9,000.

The government of Nubia and Abyssinia is despotism of a tumultuous kind. The prevailing religion of the former is Mahometan, and of the latter a corrupt form of Christianity.

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Eastern Africa.

These territories, stretching for 2,000 miles, were formerly in the possession of the Portuguese, but are now occupied by the natives and Muscat Arabs.

Divisions.	Chief Towns.
Ajan	Magadoxa
Adel	Zeila
Zanguebar	Mombaza Quiloa
Mozambique	Mozambique
Sofala	Sofala
Natal Coast	Port Natal

Rivers—Cuama or Zambezi, Sofala.

Magadoxa, the capital of Ajan, is noted for the hatred borne by the natives to Europeans. The town of Mozambique, situated on an island, has sadly fallen from its once flourishing condition. Population 3,000.—Natal Coast has been so called in consequence of the Portuguese first sailing here on Christmas day.

The inhabitants of these coasts are chiefly Savages, and may be truly called the country of the Blacks: they are for the most part Pagans, but there are many who profess the Mahometan faith.

Southern Africa.

Southern Africa consists of three great divisions, viz.,—the countries of the Boshuanas, Caffres, and the Cape Colony, sometimes known by way of eminence as the Cape.

Rivers—Orange, Great Fish River, Oliphant.

The Boshuanas are situated north of the Cape Colony. The inhabitants are characterized as industrious, and possessing some extensive and well-built towns. The Caffres are noted for bravery, truthfulness, and honesty. The Cape Colony was first colonized by the Dutch, but has been in the possession of the British since A.D. 1806. The Colony is peopled by several tribes of Hottentots, who are alike remarkable for indolence and filth. The Whites are said to amount at present to 100,000, and the slaves to 65,000.

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Western Africa.

Divisions.	Chief Towns.
Senegambia, containing the districts of Foulaks, Yallofs, &c.	Fort St. Louis, Bathurst
Upper Guinea, containing	
Sierra Leone (British Settle.)	Freetown
Grain Coast	Sanguin
Ivory ditto	Lahou
Gold ditto	Cape Coast Castle (British)
Slave ditto..	Whidah
Ashantee	Coomassie
Benin	Benin
Dahomey	Abomey
Lower Guinea, containing	
Loango	Loango
Congo	St. Salvador
Angola	St. Paul de Loando
Benguela	San Felipe de Benguela

Rivers—Senegal, Gambia, Niger, Rio Grande, Congo.

Sene-Gambia received its name from the two rivers Senegal and Gambia, the chief sources of its fertility. It is divided into a number of petty states and kingdoms; the inhabitants are chiefly blacks and sunk in low paganism; there are, however, some Mahometans. Fort St. Louis is a settlement of the French. Upper Guinea consists of a number of petty kingdoms which are continually waging war against each other; the inhabitants are all blacks, and low superstitious pagans. The King of Dahomey has lately reduced the southern states, and governs by viceroys in the most tyrannical manner. The inhabitants of the Ivory Coast are the most ferocious and untractable on the whole coast of Africa. The numerous factories established by Europeans on these coasts are now almost annihilated.

Lower Guinea was first discovered by the Portuguese, A. D. 1487; it is divided into a number of independent kingdoms, whose governments are hereditary despotisms. The inhabitants are mostly Pagans.

Soudan or Nigritia.

This territory, sometimes called Central Africa and Negro-land, is but imperfectly known. That part of it known to Europeans is chiefly situated south of the Great Desert, and on the Niger and Senegal. Soudan consists of a number of petty kingdoms, viz.—three bordering on the Desert, ten on the Niger, three on the Senegal, and four east and west of Lake Tchad.

Timbuctoo, the capital of Central Africa, and the chief commercial city of the interior, is situated about 12 miles from the banks of

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the Niger; is about 3 miles in circuit, and contains a population of 16,000, who are chiefly negroes. Birnie, the capital of Bornou, is a powerful and important city. Population 10,000.

The government of these states is the worst of despotism, caused principally through the ignorance of the natives. The form of religion of about half the population is a corrupt form of Mahometanism; the remainder are Pagans.

America.

America was unknown to Europeans until the close of the fifteenth century. Christopher Columbus searching for a western passage to India, in the service of the King and Queen of Spain, arrived at the island St. Salvador, A.D. 1492. In a second voyage he came in contact with several islands which he supposed were not far from India, and which he abruptly called the West Indies. The year before his third voyage, the continent was discovered by Cabot, of Venice, who was engaged by the British. The eastern coasts were discovered by Amerigo Vespucci, of Florence, A.D. 1499, who was the first to publish an account of the New world, of which he proclaimed himself as the discoverer; it was accordingly called America after his name.

America is divided into two large Continents of almost equal size, and which are connected by the Isthmus of Panama. These Continents are known as North and South America.

North America.

Divisions.	
Russian America	Mexico and Gautimala
British America	Part of Greenland
United States	

Capes.	Islands.	Bays, Gulfs & Straits	Rivers.
		Baffin's Bay	
Farewell	Newfoundland	Hudson's Bay	Mississippi
Hattaras	Bermudas	Davis' Straits	St. Lawrence
Chidley	Cape Breton	James' Bay	Red River
Sable	Queen Charlotte's Isles	Coronation Gulf	Mackenzie
Cod	Anticosti	Fundy Bay	Rio Celorado
Icy Cape	Long Island	Bay of Honduras and Campeachy	Hudson
St. Lucas	Vancouvier's Islands	Gulf of Mexico	Ohio
Prince of Wales	N. Georgian Isles	Bay of Delaware	Columbia
		Gulf of California	Rio Del Norte
		Behrings Straits	
		Gulf of St. Lawrence	
		Chesapeak Bay	

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Russian America.

The portion of territory occupying the north western extremity of North America, separated by Behring's Straits from Asia, belongs to Russia. This region is very dreary and generally unproductive; and, although of the extent of 546,000 square miles, its population hardly exceeds 40,000. The interior is little known. The inhabitants are mostly employed in fishing and the traffic of furs. Whales and various animals are taken here in large numbers. Russian America is divided into eight provinces, some of which are peopled by ferocious tribes.

British America.

States.	Chief Towns.
Hudson's Bay	York Fort
Labrador	Nain Fort
Upper Canada	Kingston, Toronto
Lower Canada	Quebec, Montreal
Nova Scotia	Halifax
New Brunswick	Fredericton
Newfoundland	St. John's
Cape Breton	Sydney
Prince Edward's Island	Charlotte Town

Quebec, the capital of British America, is a town of great strength but of little beauty; the streets are for the most part uneven and narrow. It was founded by French settlers A.D. 1608, and taken a second time by the English under General Wolfe, who fell in the engagement, A.D. 1759. Population, 30,000; the greater part of whom are Roman Catholics. Montreal, the capital of Lower Canada, is a very commercial town, and tolerably well built. Population, 35,000. St. John's, the chief town of New Brunswick, is a flourishing sea-port, and chiefly built of wood. Population, 10,000. St. John's, the capital of Newfoundland, is a flourishing town; the inhabitants are chiefly employed in drying and packing fish for European traffic. Population, 12,000.

The government of British America resembles that of Great Britain, but all acts must be sanctioned by the Governor General, which may be annulled by the Queen of England at any time within two years after they are passed. The prevailing religion is the Roman Catholic, but parties professing other creeds are equally eligible to offices of trust.

United States.

The United States extend from 25 deg. to 49 deg. N. lat.; and

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from 67 deg. to 124 deg. W. lon. These States were at one time colonies of Great Britain. In the year 1775, hostilities commenced between the mother country and the colonies: the Independence of the latter was acknowledged by Great Britain, A.D. 1783.

States.	Chief Towns.	States.	Chief Towns.
Maine ..	Augusta	South Carolina	Columbia
New Hampshire	Concord	Georgia	Savannah
Vermont ..	Montpelier	Alabama ..	Tuscaloosa
Massachusetts	Boston	Western States.	
Rhode Island..	Providence	Mississippi ..	Jackson
Connecticut ..	New Haven	Ohio ..	Columbus
Middle States.		Indiana	Vincennes
New York ..	New York	Illinois ..	Vandalia
New Jersey ..	Trenton	Missouri	Jefferson
Delaware ..	Dover	Kentucky ..	Lexington
Pennsylvania ..	Philadelphia	Tennessee ..	Nashville
Southern States.		Michigan ..	Detroit
Maryland ..	Annapolis	Louisiana ..	New Orleans
Virginia	Richmond	Territories.	
Columbia district		Florida	Tallahassee
North Carolina ..	Raleigh	Iowa ..	
		Wisconsin ..	Milwaukie

Washington, although the metropolis of the States, is not so large or populous as other cities in the country, but it is intended to be the most regular and handsome city in the New world. It is the residence of the President. Population, 24,000. New York, the first commercial city in America, is more than 7 miles in circuit; its public buildings are superior. Population, 313,000. Boston, the capital of New England, is noted as a commercial, and literary city, and as being the place where the revolution originated. Population, 93,000. Baltimore is the third city in the States for size; its trade and wealth are considerable. New Orleans, on the Mississippi, is considered one of the most commercial cities in America. Population, 102,000.

There is no government Church in the United States, every person is left to pay voluntarily to the form of religion which he professes. Christianity is professed by the major part of the people.

The form of government in the United States is Republican.

Mexico and Gautimala.

Mexico with Gautimala, extends from 8 deg. to 42 deg. N. lat.; and from 83 deg. to 124 deg. W. lon. Mexico, at the time of the Spanish Invasion in 1521, had been tolerably civilized: it was governed by a Spanish Vice-roy until 1810, when the cruelty of the

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latter, led to a terrible revolution, which ended in the Independence of the Mexicans, A.D. 1821.

Mexico was divided by the Spaniards into 12 Intendancies, with 3 Provinces; but the States forming the Mexican confederation now number 19 States, with 5 Provinces.

Mexico, the metropolis, is, for the breadth and regularity of its streets, one of the first cities in the world: the public buildings, with the surrounding scenery, are magnificent. The mint of Mexico is said to be one of the richest in the world. Population, 140,000.

The other chief towns of Mexico are Vera Cruz, the principal sea port; and Acapulco, remarkable for its surrounding volcanoes.

The National and only acknowledged religion of Mexico is the Roman Catholic,; but the greater part of the Indians preserve the rites of Paganism. The government of Mexico is similar to that of the United States.

Guatimala, or central America has, since the Revolution, been divided into six federal States. The metropolis of the States is called Santiago-de-Guatimala, which has been often destroyed through volcanic influence. The present capital is the third which has been built within the last century. Population, 60,000. The other towns of Guatimala are Valladolid and St. Salvador. The established religion is the Roman Catholic, and the government is the same as that of Mexico.

South America.

South America extends from 12 deg. N. lat. to 56 deg. S. lat.; and from 35 deg. to 81 deg., 20 min. W. lon. Almost the whole of this extensive Continent was long subject to Spain and Portugal, whose tyrannical oppression at length provoked the inhabitants to seek their independence by rebellion, which concluded in the establishment of several important republics. In a former table, on the physical features of S. America, may be seen the names of the States and chief towns.

Rivers.	Gulfs, Bays & Straits	Capes.	Islands.
Amazon	Gulf of Darien	St. Roque	Falkland Isles
Orinoco	Gulf of Maracaibo	St. Maria	New Shetland do.
La Plata	Gulf of Paria	Horn	Terra del Fuego
Essequibo	Bay of Panama	St. Antonio	Juan Fernandez
Magdalena	Straits of Magellan	Frio	South Georgia
Rio-Negro	Gulf of Guayaquil	Blanco	
Madeira			
Paraguay			
San Francisco			
Para			

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Columbia, Guinia.

Columbia was known when under the Spaniards as the divisions of New Granada and Caraccas; but since the year 1811 it has been known as the republic of Columbia, which consists of 12 departments.

Santa Fe de Bogota, the capital and seat of the court, is a flourishing town and contains some handsome buildings: it is situated at an elevation of 8722 feet above the level of the sea. Population, 60,000. Quito, under the Equator, is a large and flourishing city, but subject to terrible earthquakes: its streets are irregular and uneven. Population, 50,000.

The National religion is the Roman Catholic, but all others are tolerated. The government is similar to that of the United States.

Guinia, lies to the east of Columbia, and is divided between the English, French, and Dutch. The districts of English Guinia are Essequibo, Demerara, and Berbice. Its capital, George-town, contains upwards of 15,000 inhabitants. Paramaribo, the capital of Dutch Guinia, contains 20,000 inhabitants, and Cayenne, the capital of French Guinia, about 2,000 inhabitants.

Brazil, Peru.

Brazil was discovered by the Portuguese, A.D. 1499, and taken possession of in the name of the King of Portugal. The invasions of Napoleon compelled the royal family to leave Lisbon for Rio Janeiro, where they remained until A.D. 1821. In the following year Brazil was proclaimed an Independent Empire under the Prince Regent of Portugal. The Empire of Brazil is larger than all Europe, and is divided into 18 provinces.

Rio Janeiro, the capital and seat of the court, is a city of some magnitude; its streets are, for the most part, straight, and well paved, but exceedingly filthy. The Churches and Chapels of this city are very numerous and form its chief splendour. The harbour of Rio Janeiro is one of the finest in the world. Population 200,000, two thirds of whom are said to be slaves. The national religion is the most bigoted form of the Roman Catholic, and the government resembles in its formation that of Columbia.

PERU lies to the west of Brazil, and is about twice as large as Spain. Previous to the invasion of the Spaniards under Pizarro, it was governed by an Inca, and had made some progress in civilization. The country remained subject to the tyranny of Spain until A.D. 1821, when it declared itself Independent and became republican. Peru is now divided into 7 departments.

Lima, the capital of Peru, is a city of five miles in circuit, and was founded by Pizarro, A.D. 1535. The Churches and Chapels are very magnificent. Population 60,000. Cuzco, the ancient

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capital and residence of the Incas, has been a large and tolerably well built city: it was remarkable for its splendid temple of the sun. Modern Cuzco is a beautiful and interesting city, and its cathedral is of noble architecture. Population 40,000, three-fourths of whom are Indians.

The prevailing religion of Peru is the Roman Catholic, and the government similar to the neighbouring States.

Bolivia, Chili.

Bolivia, or Upper Peru, was formerly annexed to the Empire of Peru: its Independence was acknowledged A.D. 1825. Bolivia is divided into 5 departments.

La Plata, the capital of Bolivia, is built on an elevated plain; the houses are neatly erected but low. The Churches are extensive and beautifully ornamented. Population 14,000. Potosi is remarkable for its great elevation above the sea and for its inexhaustible silver mines. Population 9,000.

The prevailing religion is the Roman Catholic, but in the interior most of the Indians continue their Pagan rites. The government is republican.

CHILI is situated to the south of Bolivia, and consists of a long narrow plain: it formerly belonged to Spain, but it established its Independence A.D. 1818.

Santiago, the capital of Chili, is beautifully situated, the streets are regular, and the houses are tolerably well built. Population 58,000. Valparaiso, part of the latter city, has an excellent harbour. The prevailing religion of Chili is the Roman Catholic, and the government is republican.

La Plata, Paraguay.

The United Provinces of La Plata are situated to the east of Peru and Chili; they were formerly under the dominion of Spain, but have been enabled to declare their Independence since A.D. 1816. La Plata is at present divided into 15 provinces.

Buenos Ayres, the capital of La Plata, is the seat of the government and the resort of the congress. The city is neatly and regularly built. Population 100,000, one-fourth of whom are Europeans. The prevailing religion of La Plata is the Roman Catholic, and the government, republican.

PARAGUAY is divided on the north by a desert tract from Brazil, and by the rivers Parana and Paraguay on the other quarters, thus forming a great inland peninsula. This territory was for a long

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time subject to the cruel despotism of Spain, but declared its Independence A.D. 1811. From the latter date the country has been governed by Dictators, the first of whom was the talented Doctor Francia, who, like Cromwell, dissolved the government of the revolutionists, and appointed himself dictator of the State. Assumption, the capital, contains a population of 15,000, the greater part of whom are Indians.

West India Islands.

Belonging to Britain	Grenada	Belonging to Denmark
Jamaica	The Grenadines	St. Thomas
Bahamas	Trinidad	St. Cruz
Barbadoes	Belonging to France	St. John
Tobago	St. Martin(Northern part)	Belonging to Spain
Tortola	Martinique	Cuba
Virgin Gorda	Guadaloupe	Porto Rico
Anguilla	The Saints	Belonging to Sweden
Anegada	Mariagalante	St. Bartholomew
Barbuda	Deseada	Belonging to Columbia
St. Christopher	Belonging to Netherlands	Margarita
Nevis	St. Martin (Southern part)	Blanca
Montserrat	Saba	Testigos
Antigua	Buenos Ayre	Tortuga Salada
Dominica	Oruba	Horchilla
St. Lucia	Curacao	Kingdom of Hayti or St.
St. Vincent	St. Eustathius	Domingo

Oceanica, or South Sea Islands.

These islands, from their number and extent, now rank collectively as one of the great divisions of the earth. They have been classed into two divisions, viz.,—Australasia, or Southern Asia, with the adjacent islands; and Polynesia, or the numerous groups of small islands in the Pacific Ocean. Australasia comprises New Holland, New Guinia, New Britain, New Ireland, New Caledonia, Van Diemen's Land, New Hebrides, &c. The numerous islands of Polynesia comprise the Friendly, Ladrone, Sandwich, Society, Marquesas, Washington, Pelew, and Caroline islands. The estimated area of Oceanica has been variously asserted; it may, however, be considered nearly as large as Europe. The chief island is Australia, or New Holland, which is about 2,000 miles from E. to W., by 1700 from N. to S. in breadth. The interior of New Holland is little known, but the coast has been nearly all examined. The well known settlement of the English is on its eastern coast, and consists of 19 counties: the capital of the colony is Sydney, and the seat of the Bishop of Australia. Population 34,000. The other important towns of Australia are Hawkesbury, Windsor, Liverpool, Newcastle, Paramatta, and Bathurst. New Holland is supposed to have been discovered by the Dutch—hence the name.

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Sketch of the History of Geography.

With regard to the exact time that men first turned their attention to the science of Geography and to inquire into the form, boundaries, extent, and various productions of the different countries of the earth, is, in all probability, impossible to decide; but, it may reasonably be supposed, that it embraced the earliest exertions that human skill could have bestowed. The Phœnicians, in their pursuit of commerce, became acquainted with many countries before unknown; proceeding as far as the Atlantic ocean. The Babylonians and Egyptians were alike remarkable for their exertions to extend the science; but the Greeks were the first people who reduced Geography to a regular system. It was Eratosthenes, librarian to Ptolemy Euergetes, who drew the first parallel of latitude, which commenced at Gibralter, passed to the island of Rhodes, and from thence to the mountains of India. The shape of the earth not being perfectly known until after the time of Columbus, the discoverer of the New world, in 1492; latitude, and particularly longitude, could previously have been but little known. At the commencement of the Christian Æra flourished Strabo, a Capadocian, the first writer on Geography. His elaborate works, seventeen in number, have been handed down to us; they display great and indefatigable labour, industry of research, and a large amount of skill. To Ptolemy, an Egyptian, who lived in the second century, we are indebted for a very scientific work on the subject: he also constructed maps on Geometrical principles, and marked down places according to their latitudes and longitudes. There were many works after Ptolemy, the most interesting of which was published by Hudson, called "The Lesser Writers of ancient Greece, or Geography." The decline of the Roman Empire gave geography a severe shock, and retarded rather than advanced its progress. Unreasonable statements, incapable of demonstration, took the place of sound theory. Notwithstanding, the Arabians distinguished themselves considerably even in those times of darkness, designated as the middle ages. To good King Alfred we are particularly indebted for the true Geography of Denmark, Sweden, and Norway. Greenland was also discovered in his time. In 1390, it was supposed that an island N. E. of N. America was discovered, now known as Newfoundland. In the fourteenth century, Marco Paulo, of Venice, by his extensive travels, added new lustre to the science; and the discovery of the Mariner's compass by the Portuguese enabled them to visit places on the globe, before unknown or imperfectly explored. In the fifteenth century, Columbus, by discovering the New World, added extensively to the stock of Geographical knowledge, which may be considered as an occurrence of great importance, and one that gave an immense impetus to future expeditions and research. Since the discovery of America numerous voyages in search of other lands have been undertaken, yet our knowledge of the science is far from mature.

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Geographical Expressions.—Land.

Continent (from CONTINEO, to hold together,) means a large portion of land containing or holding together several countries or kingdoms, as Europe, Asia, &c.

An Island is a portion of land entirely surrounded by water, as Great Britain, Sicily, &c.

A Peninsula (from PŒNE almost, and INSULA an island,) is a portion of land almost surrounded by water, as Africa, Spain Portugal, &c.

An Isthmus is a narrow neck of land joining two continents, or a peninsula to the main land, as the Isthmus of Suez, Corinth, &c.

A Promontory is a high land stretching out into the sea, the extremity of which is called a Cape. Promontories, for the most part, differ from peninsulas, by narrowing as they extend into the sea, an example of which may be seen in Southern India. A Shore, or Coast, is land bordering on the sea.

Water.

An Ocean is the largest extent of salt water, as the Pacific, Atlantic, &c.

A Sea ranks next in size to an ocean, as the Mediterranean sea, the Irish sea, &c.

A Strait is a narrow passage of water joining two seas, as the Straits of Dover, &c.

A Channel is a passage of water wider than a strait, as the British Channel, &c.

A Gulf, or Bay, is a large arm of the sea running up into the land, as the Gulf of Venice, Bay of Biscay, &c.

A Creek is a smaller arm of the sea running up into the land.

A Lake is water entirely surrounded by land, as the Lake of Geneva, &c.

A Frith, or Estuary, is the extension of a river at its mouth into an arm of the sea, as the Solway Frith, &c.

Civil Governments.

Monarchy, (from MONOS alone, and ARCHE government,) is a kingdom governed by a single person.

Limited Monarchy, is one in which the subject enjoys the greatest rational freedom of this kind; Great Britain is an example to all other constitutional governments.

Absolute Monarchy or Despotism, is one in which the executive and legislative authority is concentrated in the monarch. A complete absolute monarchy can scarcely be said to exist in Europe.

Republican Government is one in which the authority is administered by representatives chosen by the people, as in Switzerland.

FINIS.

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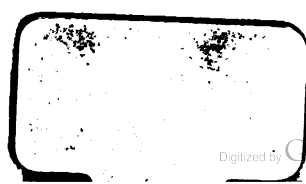
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